The Florist and pomologist

Robert Hogg

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THE

FLORIST AND POMOLOGIST;

A PICTORIAL MONTHLY MAGAZINE

OF

FLOWERS, FRUITS, AND GENERAL HORTICULTURE.

CONDUCTED

BY ROBERT HOGG, LL.D., F.L.S.,

ASSISTED BY MR. THOMAS MOORE, F.L.S.,

AND NUMEROUS ABLE CONTRIBUTORS.

1866.

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Beurré d' Anjou.

CHROMO-LITHOGRAPHED BY F. WALLER. 18. HATTON GARDEN

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THE

FLORIST AND POMOLOGIST.

BEURRÉ D'ANJOU PEAR.

WITH AN ILLUSTRATION.

The fruit which we now figure under the name of Beurré d'Anjou is not the same as Brown Beurré, of which the same name is a synonyme, but another and a very different variety that was introduced by Mr. Rivers under that name. It is, we are informed, the Nec Plus Meuris of the French nurseries, and was received from Messrs. Jamin et Durand, of Bourg-la-Reine, under that name; but it is totally distinct from the Ne Plus Meuris of Van Mons. I cannot discover the origin of this variety, and I am therefore constrained to adopt the name that has been given to it in the French collections; but it is a most unfortunate one, seeing that it is liable to add to the already great confusion of nomenclature that pomologists have to contend with.

It is some years since this excellent Pear was brought to my notice by Mr. Rivers; and I have since found on every occasion that I have met with the fruit, that on account of its handsome appearance as well as the superiority of its flavour, it is a variety of the greatest excellence, or, as Mr. Rivers expresses it to me, "remarkable for the clearness and beauty of its fruit."

The fruit is fragrant, large, even and regular in its outline. Skin smooth, and not at all rough to the feel; on the shaded side pale straw yellow, dotted all over with rather large freckles of russet; and on the side exposed to the sun it has a bright crimson cheek, freckled with russet, and strewed with dots of the same. There is also a crust of russet round the stalk. Eye very small and open, with very short erect segments, set in a very shallow depression. Stalk very short and stout, inserted on the apex of the fruit, with occasionally a large fleshy lip on one side of it. Flesh yellowish, tender, buttery and melting, very juicy, sweet, and richly flavoured.

A first-rate Pear, of delicious flavour. Ripe in December.

The tree is a very robust grower on the quince, forming a handsome pyramid, and bears well in the warmer situations of England as a pyramid, bush, or espalier. When trained against a wall in warm climates its flavour is often deteriorated, although its size and beauty are increased. In common with some of our finest kinds of Pears it is not always up to its character in flavour, but is never inferior. On the whole, it is to be reckoned amongst our choice Pears.

H.

THE NEW CHRYSANTHEMUMS.

I MUST confess at the outset that *all* the new Chrysanthemums I have seen of the past autumn are in the hands of Mr. Salter, of Hammersmith. There will be others, but I have neither seen nor heard of them, and I regret I cannot give them in this paper. Mr. Salter has, as usual, some superb flowers. It is a rich treat to walk through his houses in the month of November, if it were only to see what can be made of the Chrysanthemum as a plant for conservatory decoration. You are struck with the great variety of shades, with the brilliancy of colour that has in late years been attained, and with the massiveness of many of the flowers. The flowers recently exhibited at the Guildhall, at the meeting of the United Horticultural Society, were thought by more than one or two persons to be Dahlias, and in size at least they are approaching them; but kindly allowance must be made for the pure cockney element that would visit a show in the heart of "London's rich and famous town." Mr. Salter's annual show of Chrysanthemums in November is as attractive to the florist as the Lord Mayor's Show of the same month is to the citizens; and I propose to give a few brief notes, first of the new flowers, and then of a few that were sent out in 1864-65.

I take Gloria Mundi to be the finest flower of the year. Its colour is brilliant golden yellow: the flower is beautifully incurved, has a very high centre, and is a model of form. Another splendid yellow flower is Golden Ball: it is a deep golden colour, is also finely incurved, and is of great size. To each of these flowers the Floral Committee awarded first-class certificates of merit. Next in point of merit are Golden Beverley, a sport from the white flower of that name, bright canary yellow colour, and finely incurved; and Hereward, rosy crimson, with silvery backs to the petals, which are finely incurved. These two received second-class certificates from the Floral Committee. Other new flowers are Rose Leach, one of the recurved flowers, colour very delicate peach, a very pleasing shade; John Salter, golden yellow, but when fully incurved the colour is a reddish cinnamon—a fine and very beautiful flower; Countess of Granville, pearly white, a good-sized and beautiful flower; Crimson Velvet, a splendid flower, colour glowing crimson, brilliant, and smooth—a "beat" on all the flowers of that shade of colour; Compactum, a very pretty and compact flower, colour silvery rose, finely incurved; Fulgidum, dark red, glowing into bright red—a very striking and somewhat novel incurved flower; Empress Eugénie, delicate lilac peach, a large flower, and finely incurved; Ondine, very delicate peach, quite new in colour, and having the centre tinged with citron, a large incurved flower; and Titania, bright rosy carmine suffused with cream, darker in colour, and much better than Ariadne. This list does not include all the new flowers Mr. Salter will send out in the spring, but simply all he had named up to the time that I paid him my annual visit.

Of last year's flowers the following were very fine:—Alba Multiflora, a good-sized incurved white flower; Aurea Multiflora, pure yellow, very bright and incurved; Eve, sulphur yellow, of a delicate colour, and finely incurved; Golden Dr. Brock, a sport from the reddish orange Dr. Brock, a beautiful incurved flower of a bright golden yellow colour; King of Denmark, bright rosy lilac, a fine exhibition flower, also incurved; and Venus, delicate lilac peach, a large flower, finely incurved. Of older flowers I saw splendid specimens of Antigone, white, finely incurved; Antonelli, incurved, colour salmon orange, a fine show flower; Carissima, ivory white with rose markings, finely incurved; Dr. Brock, reddish orange, incurved and very fine; Duc de Conegliano, a large red-coloured recurved flower, very showy; Edwin Landseer, rosy ruby colour, large and very fine; Etoile Polaire, a finely incurved golden

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yellow flower; General Bainbrigge, orange amber with golden centre, a large and beautifully formed incurved flower; Jardin des Plantes, bright golden orange, splendid colour, and flowers finely incurved; Lady Slade, delicate lilac pink with blush centre, finely incurved; Lalla Rookh, dark ruby rose, a very close incurved flower; Lord Palmerston, amaranth, suffused with rose, and tipped with silvery blush, a distinct and finely incurved flower; Mulberry, dark mulberry, a small flower, but the colour very good, also incurved; Oliver Cromwell, dark chestnut, fine and incurved; Prince Alfred, a splendid flower, very large and full, colour rosy crimson, finely incurved; Princess of Wales, pearly white, delicately tinted with rose, very large, of exquisite form, and finely incurved; and Sir Stafford Carey, dark brown chestnut with golden points, large, and very finely incurved.

New Pompone flowers are represented only by Prince Victor, much darker and finer than Bob, the colour rich maroon; and the hybrid class by White Trevenna, a sport from the pink Trevenna, having neatly formed flowers of a pure white colour. The Anemone section has one new representative only—Prince of Anemones, a large flower of good form, colour pinkish rose.

The following are very fine Pompone flowers—viz., Capella, dark red chestnut with orange centre; Florence, dark cherry, very fine; and Miranda, a fringed bright rose flower, extra fine, and fragrant like the Violet; while many others are valuable either as border flowers or for conservatory decoration.

I fear that the Japan flowers recently introduced by Mr. Fortune will scarcely become favourites with any of us. They are loose ungainly-looking things, and the colours are by no means attractive, and the less said about their form the better. They may possibly be by-and-by turned to account by the hybridiser; but as a class, unless there can be some very marked improvement made in them, they will soon be left stranded on the shores of the past.

Quo.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

Dec. 5th.—Thanks to Mr. Veitch, this meeting was made very interesting by a display of flowering Orchids and some other plants. Of the former there were the beautiful rose-flowered hybrid Calanthe Veitchii; Cattleya Dominiana, with handsome lilac flowers; Dendrobium Tattonianum, and several beautiful varieties of Lycaste Skinneri. Of other plants not the least interesting were Thibaudia macrantha, "with large, waxy, pinkish flowers, barred crossways with crimson," extremely novel; Rhododendron Princess Alexandra, with wax-like blossoms of a delicate flesh colour; a Sonerila margaritacea, with large white blotches on the leaves; Manettia micans, several specimens of which were in three-inch pots, in which they blossomed very freely, and it looked a valuable basket plant, as they were covered with bright scarlet blossoms; Eriocnema marmorea, very beautifully marked; some half-standard Epiphyllums in variety, &c. Messrs. Lucombe, Pince & Co. received a first-class certificate for a very handsome variety of Polystichum angulare, called parvissimum, one of the most interesting things in the exhibition. A large collection of plants came from the Society's garden, in which were various Cypripediums, Barkeria Skinneri, the charming little Sophronitis grandiflora, Lycaste Skinneri, a variety of Odontoglossum, sent home by Mr. Weir, the Society's collector; Dracænas, Crotons, Musa coccinea, Hibiscus Cooperi, and some dwarf, robust, and very healthy plants of Poinsettia pulcherrima, with heads of a beautiful vermilion scarlet hue.

But very little was produced for the Fruit Committee. From Mr. Vair, gardener to Lady Dorothy Nevill, came a fruit of Monstera deliciosa, which

was found on trial to be extremely luscious and excellent in flavour. From Mr. A. Parsons, of Danesbury Gardens, came a collection of Pears; and from Mr. Myatt, of Deptford, came a very good seedling Pear.

Dec. 19*th*.—This meeting was made exceedingly interesting and very attractive by the presence of a fine display of varieties of Lycaste Skinneri in great variety, the tips of some of the flowers being beautifully marked. There were as many as fifty-three specimens, and no two of them could be said to be exactly alike. Besides this group there were the following plants of Orchids in flower:—Barkeria Skinneri, Barkeria Skinneri atropurpurea, the latter being much deeper in colour, and Dendrobium Tattonianum. Also the following blooming plants:—Rhododendrons Princess Alexandra and Princess Helena, the latter pink, veined with carmine, the tubes of the flowers being bright carmine; a small plant of the curious Thibaudia macrantha, having seven flowers; and Urceolina aurea, called a yellow Eucharis, with foliage greatly resembling E. amazonica, but the flowers are of a different shape. They were of a clear yellow colour, and the plant itself was introduced by Mr. Veitch from Peru a year or two ago. There were also plants of Aucuba japonica vera with clusters of bright red berries of a large size; also A. japonica variegata, and A. longifolia. A collection of plants also came from the gardens of the Society, and with them cut sprigs of Chimonanthus fragrans, and the variety grandiflorus, both extremely fragrant. This favourite wall plant seldom seeds, and the large-flowered variety appears to have been obtained from cuttings struck from C. fragrans.

But little fruit was produced. From Mr. Rivers came some excellent Tangierine Oranges; and by G. F. Wilson, Esq., the Chairman of the Fruit Committee, were produced some fine Chaumontel Pears from a tree in a pot, grown in an orchard-house, and moved outside to ripen the fruit.

R. D.

SCARLET PELARGONIUMS—BEATON'S RACE.

The first instalment of the rich legacy left to the horticultural world by the late Mr. Beaton has now been placed fairly before the public, and the verdict is one of general approval.

Donald Beaton, like others in life, had his detractors; but if an honest heart, uncommon industry, and more talent than he had tact to turn to account, entitle a man to the respectful remembrances of his fellows, then his friends need not trouble themselves about his fame.

Some of his hybrid Pelargoniums, the result of many years' thought and labour, he did not live to see bloom. Masses of selected kinds were planted out in my nurseries at Waltham Cross about the end of May last, and have been seen there by many leading horticulturists, both amateur and professional. They have also been grown in limited quantities at Battersea Park, at the Royal Gardens at Kew, at Chiswick, and at Kensington, and the managers of these establishments have given the best evidence of their opinion of them by intimating their intention of using them extensively in their arrangements for the forthcoming year. The criticisms ingenuously and sometimes, I fear, disingenuously, put forward that the flowers are deficient in form (which by the way only applies to some of them), does not affect their value one jot. Who, when looking on the glorious masses produced by Stella, to which race these hybrids principally belong, would think of descending to the minute criticism of a single flower? But it is the custom with some to depreciate what they do not possess, and I am obliged to hear that some of the loudest detractors, who were at the same time large buyers, having now raised a stock, are begin-

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ning to acknowledge their mistake! This, I suppose, they would designate a clever business "move." As far as I am concerned they are welcome to all the benefits they may derive from it; and I accept their recantation in good faith, because it is better that they should "repent" than "continue in sin."

To those who have but one standard of beauty, the florist's standard requiring the circular form, Donald Beaton, Princess Lichtenstein, and Mrs. William Paul, may be recommended as in advance on all others of their colour. But while I am ready to support the axioms of the florist when applied to florists' flowers, I sternly refuse to apply them to every object in the floral world, and I maintain that Beaton's hybrid Pelargoniums are manifestly without their pale. To my mind there is a poverty of conception in being unable to discover beauty out of and beyond the florist's pale, however sound may be his premises, however logical his conclusions. The late Mr. Beaton once said to me, in reply to a remark that the florist would never recognise the Stella race of Pelargoniums, "Never mind; let me get novelty of colour, compactness of habit, freedom of flowering, flowers that will stand the sun and rain: the public will appreciate their qualities, and I will improve the form afterwards." Alas! his life was too short to complete the task. But there remain among us others who can and doubtless will take up the work, and extend and perfect the new lines of beauty which he so successfully struck out. No impartial critic could for one moment contend that the florist's Pelargoniums produce anything like the effect of these hybrids when planted in masses in the flower garden. This is all that has been or is at present claimed for them. If the florist is not content with them as they are, let him cultivate the new and rich ground, to which the late Mr. Beaton has given him access, and draw forth productions in accordance with his own taste. A rich harvest will surely reward his skilful brain and industrious hand. But until he succeeds in combining his ideal of form with the valuable qualities these hybrids possess —namely, perfection of habit, freedom of bloom, novelty of colour, compactness, and indifference to sun, wind, and rain, we must continue to say that the race now before us is "indispensable in the future of every well-arranged flower garden." Of the sixteen varieties sent out from these nurseries last spring there is not one but what has been praised by some who are entitled to be heard. As, however, they have been constantly under my eye throughout the summer and autumn, it may be interesting to your readers to know the order of merit which I have assigned to them in my common-place book:—

Indian Yellow	Donald Beaton	Glowworm
Waltham Seedling	Duchess	Princess Lichtenstein
Orange Nosegay	Alexandra	Scarlet Gem
Amy Hogg	Mrs. Wm. Paul	Magenta Queen
Black Dwarf		Salamander

The remaining two, Fulgens and Pillar of Beauty, I do not recommend for bedding-purposes, but for growing under glass, the latter as a climber, they are of uncommon merit. Now, in the adjustment offered above it must be borne in mind that it is founded on the experience of a single and peculiar season, for although these kinds bloomed with me in the summer of 1864, I was then too intent on propagating and seeding them to allow them to take their natural development. Hence it is just possible that another season's experience may modify their positions.

It is a fact well known to the florist that when new ground is once broken the disposition of succeeding generations to vary is often extraordinary. I have found it so with the offspring of Beaton's hybrid Pelargoniums. Among the seedlings which bloomed here for the first time this summer I have found not only improvements on the originals in form and colours, for which I was

working, but also sports and novelties quite unlooked for: "dark rosy purple," "light rosy purple, with white blotch on upper petals," "light bluish pink," "rich crimson, orange blotch, white eye," "scarlet and purple nosegay," "purple and rose shaded," are descriptions extracted from my note-book, which abundantly testify to this tendency. Then there is a race of Pompons, or Liliputians, of various colours, of which the well-known "Waltham Pet" may be taken as the type. It was a sad day for the Verbena and other kindred but uncertain "bedding" plants when Beaton took to hybridising the rich and varied species of the genus Pelargonium. The certainty with which they accomplish the work allotted to them, their freedom and continuity of bloom, the gorgeous masses of colour which they produce, and their comparative independence of the changes of weather, place them without rivals in their own peculiar walk. The following set have been selected from among some thousands of seedlings for distribution in the forthcoming spring; and although I am not prepared to say that this will be the exact nature of the issue, it is yet that which is contemplated at the present time.

1. NOSEGAY, OR HYBRID NOSEGAY VARIETIES, RECOMMENDED FOR MASSING OUT OF DOORS.

Banneret.—Flowers crimson, purple and scarlet shaded. Very bright and beautiful.

Fairy Queen.—Rosy purple. A large smooth flower.

Minstrel.—A salmon Nosegay, something like Lord Palmerston, but brighter in colour, broader in the petal, and consequently more effective.

Monte Rosa.—Dark rosy purple; fine truss, and habit very free.

Nimrod.—Orange scarlet, white eye; large truss; fine foliage. Very free.

Nymph.—A salmon-pink Nosegay, large and fine.

Peach Nosegay.—Peach colour; plain leaf; splendid truss. Very free,

Phœnix.—Splendid scarlet, in the way of Stella, but much brighter.

Prince of Orange.—Orange scarlet, very bright; great substance; good habit; blooms very freely.

Rebecca.—Flowers cherry colour; fine truss; very profuse; habit dwarf.

St. George.—Flowers dark chestnut, quite a new colour.

Salmon Nosegay.—Flowers true salmon.

Sir J. Paxton.—Bright orange; fine large truss.

Village Maid.—Deep pink, white eye, habit dwarf; the deepest of the pink varieties.

2. VARIETIES SELECTED FOR THE FORM OF THE FLOWER AND TRUSS, AND RECOMMENDED PRINCIPALLY FOR IN-DOOR CULTURE.

Bride.—Flowers pure white, deep red eye; of fine form and great substance; good truss and habit.

Cardinal.—Orange scarlet; perfect in form and of good substance; truss and habit good.

Celestial.—Flowers rosy lake with fiery spot on upper petals, centre bluish purple, reminding one of the Cactus speciosissima; large white eye. New in style, and surpassingly lovely.

Lord Chancellor.—Salmon pink; perfect shape; white eye; fine habit, and very free.

Poet Laureate.—Flowers rosy purple, top petals orange scarlet; yellowish eye.

Tiara.—Flowers scarlet crimson, with a glow of purple; fine habit; good truss; very free.

3. POMPON, LILIPUTIAN, OR PIGMY VARIETIES.

Diamond.—Fine scarlet, purple centre, distinct white eye; blooms very freely; good dwarf habit.

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Dryad.—Beautiful rosy pink; fine shape and truss.

Naiad.—Flowers purple, scarlet top.

Waltham Gem.—Flowers light red, white eye, peculiar and beautiful colour; leaves yellow; habit dwarf and compact.

Waltham Lilac.—Flowers true lilac.

Zephyr.—Light purple, rose top; very dwarf and free; stands the rain and sun well.

These varieties once in circulation, and thanks to the intelligence and industry of the late Mr. Beaton, a complete and splendid flower garden may be formed of Pelargoniums alone.

Waltham Cross, London, N. WILLIAM PAUL.

REMARKS ON FRUIT-TREE CULTURE.—No. 5.

In my former papers on this very interesting subject I have endeavoured to point out in plain and practical language, divested alike of technicalities or scientific theories, a few of the more prominent points which have occurred to my mind during the course of my manipulations and practice; and as I trust they may serve as reminders to those young beginners in the profession, who will, most probably, consult their own interest by keeping up an acquaintance with the gardening literature of the day, I will resume the subject by commencing with the management of the trees the season after planting, which is the point to which we have now arrived. And here we must set before our mind's eye the objects which we propose to strive after in our future operations, the principal of which I conceive to be the production of fruit, and, therefore, our attention will naturally be directed to the formation of fruitful wood. This part of the subject is altogether so important that it ought most particularly to engage the attention of the young practitioner. Fruitful wood is never the result of chance, but may, in most cases, be traced to a primary moving cause; and the one great moving cause into which all other minor causes converge, or from which they radiate, is that law of nature by which plants in common with animals are impelled to reproduce their kind, which as a general rule will take place when a certain point of maturity is attained, or, perhaps I might say, certain conditions of growth arrived at in which the tree is strong enough to bear fruit. In practice we are accustomed to follow out certain methods, by which we can almost to a certainty act upon the known tendencies of trees under certain conditions and circumstances, so as to produce, as it were, artificially those conditions by which plants are influenced to obey the above law when growing in a state of nature; or, in other words, left to ramble unchecked. In writing on these subjects we are very apt to allude to plants as if they were animated beings; and I do not see the unfitness of this, because plants do really possess a principle of vitality which is very near akin to the vitality of animal life, and the principles on which we work are alike in both cases. Many of them also possess a wonderful power of accommodating themselves to various circumstances, and it is only by acting on this analogy between them that we are able to produce corresponding results. In the case immediately before us, under ordinary circumstances plants do not proceed to the formation of fruitful wood to any extent until a partial exhaustion takes place, or, in other words, a certain degree of maturity is arrived at. The time at which such maturity is attained varies very much in different plants, but when attained the functions of the tree are at once diverted to the development of the organs of reproduction, and the result is the formation of fruitful wood.

Now, root-pruning, lifting, and all the other manipulations attendant upon the artificial management of fruit trees have this very object in view, and are but so many means by which that condition of growth is brought about, because by those operations we disturb the tendency in young trees to excessive development of wood, and threaten, as it were, the life of the tree, which at once sets about the work of reproduction by seed.

The means to be adopted for inducing this habit of growth are various both in mode and application, but all tending to the same end:—In one case severe root-pruning may be necessary; in another, it may be best to lift the tree entirely out of the ground and replant it in fresh soil; and in another, the disturbance of the action of the roots by defoliation, or the constant and continual removal of all superfluous growth may be resorted to, or, in other words, the system of stopping and pinching back the growth during the summer, by which the roots are greatly influenced, and in most cases a fruitful habit induced. I should also observe in passing, although I shall have to refer to the subject again, that excessive fruit-bearing has a very great influence on the roots and growth of the tree; and when by our operations we have succeeded in bringing the tree into a good bearing state, we possess in the fruit a most powerful auxiliary in the work of maintaining the balance between the roots and branches.

If a fruit tree is planted in generous soil, and is otherwise favourably situated, it proceeds forthwith to the development of a strong and vigorous growth, and if left unchecked it will continue to do so as long as the roots can find food in sufficient abundance, but when the store is exhausted the necessary check is produced, and fruit-bearing follows. But previous to arriving at this point, we often see such trees produce a fair amount of bloom, which expands and to all appearance sets very well; but, except on the very weakest branches, it never advances further, but drops off abortive, because the strong shoots possess so great a power of attracting the sap to themselves, that it is diverted from the incipient fruit to the formation of more woody growth. Before these things came to be better understood, this state of matters was sought to be remedied by a resort to severe winter pruning; the strong wood was cut out, and the weaker and apparently fruitful was left or laid in, as the case might be; and the result was very often a state of things worse than before, because of the great amount of sap which the strong growth of the preceding year had sent down in readiness for the future development of growth, and the result was the continued development of strong and vigorous wood, in even a larger proportion than before, because the effect of cutting back strong shoots is to produce a greater number of equally strong shoots; and this is a tendency of which we always take advantage when we wish to obtain a supply of young shoots to fill up vacancies.

Redleaf. JOHN COX.

THE NUNEHAM PARK ONION.

THIS remarkably fine Onion was exhibited by Messrs. W. Cutbush & Son, of Highgate, at the recent International Show of Fruit and Vegetables at South Kensington, and it was fitly awarded a first-class certificate for its excellent qualities. The bulbs are very large, and remarkably solid and heavy, and it has all the appearance of being an extraordinarily good keeper. From a small plot of ground a great weight of bulbs can be obtained. Those who claim for it an identity with Danver's Yellow, must have been struck with the essential difference in the appearance of the bulbs; a s seen at South Kensington,

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not only did it lack similarity of shape, but also the agreement of colour of the outer skin, while the smoothness of Danver's Yellow was wanting in Messrs. Cutbush's variety, the last having a rougher and hardier-looking outer covering.

T. K.

THE FLORAL DECORATION OF DWELLINGS.

FEBRUARY, whatever may be said to the contrary, is a trying month for those who have much decoration to provide for, unless they have a great amount of glass and plenty of fuel at command. Most of the useful autumn plants are over, and there are few to be had from the cold houses. It is a great sacrifice to use Camellias, Heaths, or Epacrises, for these are seldom worth much after having been in the house for any length of time. Azaleas must have heat to bring them out in February; and Primulas and Cinerarias must also have had a little, otherwise they do not expand a sufficiency of blooms at one time to be effective in single vases or looking-glass cases. Bulbs must also have a good brisk heat to bring them into bloom by the beginning of the month; and many persons, too, object to Hyacinths as being too sickly for rooms.

Where it can be done with proper effect, it is a good practice to make a distinction in the different rooms. At present we have for the dining-room neat dwarf plants of Otaheite Oranges in miniature tubs, with a good sprinkling of fruit, the old Ardisia crenulata, Dianella cœrulea with its beautiful blue berries, Rivina humilis, and Solanum pseudo-capsicum. The last is very effective; good examples of it might be seen in the conservatory at South Kensington both last season and this. The Ardisia is also a good plant for decoration, from its clean glossy leaves and numerous bunches of red berries. We also find, from its having been standing in conjunction with Ferns, that great numbers of these spring up all over the surface of the soil in the pot, and they diminish the length of the stem, and save the labour of mossing the vase over, without doing any apparent injury to the plant.

For general decoration, we have in large single vases Azaleas, Canarina campanula, Thyrsacanthus rutilans, Persian Lilacs; and for the largest vases, by the middle of the month, a plant or two of the Guelders Rose and Laburnum come in for a change. The old-fashioned Canarina is too well known to require description; it is of easy growth, and has a light handsome appearance in rooms. The Lilac, Guelders Rose, and Laburnum are kept carefully to one stem, and make a good change: the Lilac in particular is a great favourite, and blooms profusely when so treated. Thyrsacanthus rutilans is much improved by tying the shoots out at the top to a circular wire or hoop, which keeps the long pendulous flower-stalks well out, and shows the flowers to greater advantage. For smaller vases, or tables, and bronze stands, we generally use a few of the best sorts of plants, as Amaryllis and Deutzia gracilis; and one stand is of Eucharis amazonica, and others of Fern-leaved Primulas. A very good plant for this month on a drawing-room table is the Ipomœa bona-nox: it opens its large white blooms about seven in the evening, and they remain open all the night, scenting the whole room with their delicious odour. It is a mistake to dry Amaryllises; they are continual bloomers if carefully treated. The Eucharis is, perhaps, the most easy stove bulb that we have to grow and bloom at any time with certainty; it is, besides, the most beautiful plant for a room table that I know, as it opens its blooms freely, and stands long. In large tile-boxes inside the windows, where the plants require to be from 18 inches to 2 feet in height, we have Browallia, Begonia nitida, Eranthemum pulchellum, Gesneras, Salvia splendens, Justicia, Poinsettia, and the beautiful white Prunus. The Eranthemum and Justicia are not good house plants, as they soon lose their

bloom. In small cases under looking-glasses, &c., we have Begonias, as insignis and others of the best winter-blooming sorts, grown in pots of the proper size to fit the boxes. Four or five cuttings are put into a 60-sized pot in August, and shifted at intervals into the proper size, which is generally that called 48's. When no longer serviceable the plants are thrown away. The red and white Primulas and Cinerarias are also grown in the same size, and thrown away when done with, as they are seldom of any use afterwards, as we find it better to push on a fresh stock than try to recover them. The best Tulips for very early work are the Duc Van Thols, particularly the yellow. In niches round the entrance-hall, or on each side of busts, the Calla æthiopica is most useful, and can be had during most of the winter and spring months.

No taste which has sprung up of late years is so beneficial to the gardener as that for fine-foliaged plants; they not only add to the summer variety, but many when properly treated are most useful for winter house decoration. Supposing that we are in the midst of a run of company, and anxious to make a change from the flowering plants, we put in the large vase, where the high Azalea is, a plant of similar height of the Canna discolor; in the next size, Latania borbonica and Seaforthia elegans. The former of these is a most graceful Palm for a room or entrance-hall; and when large the Seaforthia is more stately in habit, and requires a few Ferns round the bottom of the stems. For the other places we have Dracænas, Croton pictum, Ferns, &c.; and for the small boxes, Centaurea argentea and candidissima. Coleus Verschaffelti, and the yellow-variegated Geraniums. Centaurea candidissima is a most beautiful plant for decoration; its long, feathery, frosted-looking, silvery leaves are very handsome in vases, and the plants come in for the garden in spring. Many of the new yellow-variegated-leaved Geraniums are much more beautiful and effective in pots with a little heat than when planted out in the garden. All the variegated-leaved Begonias are unfortunately very dull, and make no show in a room, which is the more to be regretted on account of their easy culture; they want a more decided mixture of white and red. The Coleus requires a little bottom heat to keep it moving into leaf for the winter months.

J. F.

PEARS.

No fruit, perhaps, has made more progress than the Pear. Some few years ago, with rare exceptions, Pears were little better than a dish of Skirving's Swedes! The difficulty now is how to select good Pears, and the best. The Pear catalogues are nearly as extensive as the Rose catalogues, the reader is bewildered, and ends by ordering none. I have pleasure in recommending the following. All not asterisked are on the quince stock. The best two here, and the best I have ever tasted, are respectively the two first-named:—1, Joséphine de Malines; 2, Beurré Superfin; *3, Marie Louise; 4, La Vineuse; 5, Doyenné d'Alençon; 6, Beurré Diel; 7, Duchesse d'Orleans; 8, Dr. Trousseau; 9, Baronne de Mello; 10, Bergamotte d'Esperen; 11, Beurré d'Aremberg; 12, Beurré de Rance; 13, Beurré Defais; 13, St. Michel Archange; 14, Marie Louise d'Uccle; 15, Williams's Bon Chrêtien; 16, Beurré Beymont; 17, Napoléon Savinien; 18, Glou Morceau; 19, Doyenné Gris; 20, Beurré Bachelier; 21, Peach; 22, Beurré d'Amanlis; 23, Comte de Lamy; 24, Passe Colmar; 25, Beurré Mauxion; 26, Duchesse d'Angoulême; 27, Beurré Sterckmans; 28, Doyenné d'Eté, first early. These lost their crop by the frost. I removed the sheet over them a few days too early. On the 7th of May, the water in the stable-bucket was frozen. Madame Millet, Barbe Nelis, Fondante de Mars, Comte de Flandre, Fondante d'Automne, Beurré Giffard, Winter

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Nelis, Iris Grégoire, Avocat Nelis, Bezi d'Esperen, Thompson's, Aglaë Grégoire, Louise Bonne of Jersey, Prince Albert. Such are my stock. Such were my kind friend, Mr. Rivers's gift. These little trees are the delight of all who come here. I have two other gifts of his which I can most highly recommend, the Transparent Gage and the Royal Victoria Nectarine. The last is late, very large, handsome, very excellent, and the tree is very healthy. It is by far the best Nectarine that I ever saw. It is round, a little flattened at the apex.

These Pears were sent to me to taste by my friend, Charles Ingram, Esq., of Blandford (not grown on the quince stock), and they are very good—Van Mons Léon le Clerc (extra good), Dunmore, and Napoléon.

If your readers buy some of the above Pears, I think they must be pleased. Except the first two, I have not put them in the order of merit. With the exception of 28, they may all be called "delicious." Doyenné d'Alençon is very superior, but tender in its blossoms. In fine, I may observe, that is impossible to define the seasons of ripening. I never knew Pears and Apples rot so fast.

Tarrant Rushton. W. F. RADCLYFFE.

ON SPARROWS EATING GOOSEBERRY BUDS.

I OBSERVED with some interest Mr. Tillery's account in Vol. IV., page 122, respecting rooks eating Crocus bulbs, and also his remarks on sparrows; but I differ from him as to sparrows eating Gooseberry buds. During a long experience I have never detected them doing so, although I have watched them closely amongst damaged bushes. I may have mentioned this before in these pages, and also that bullfinches did the damage, and that sparrows were wrongfully blamed. I likewise differ from Mr. Tillery's statement, where he says "Who ever saw a sparrow eat a grub or caterpillar if it could get anything else in the shape of grain, seeds, bread, or potatoes?" I have encouraged a small colony of sparrows for several years, and it is surprising to see the quantity of both grubs and caterpillars which they carry to feed their young. Other writers mention the same thing. In the "Naturalist's Magazine" one person speaks of a sparrow dropping grubs from its bill into a cage to feed a canary, which a lady at Chelsea had put outside her window; and Bishop Stanley states, on the authority of another writer, that a pair of sparrows during the breeding season may destroy 3400 caterpillars in one week. I may have said enough to show that my own statement stands not alone, to which I may add, that there are many different kinds of birds that feed their tender young with food of very different quality from that of the old ones. In fact, this is considered to be one, if not the chief, cause which gives impulse to the migration of birds.

I fully concur in the account of sparrows eating off the tops of early Peas. Perhaps the best preservative is to cover them with nets or branches, or to draw a little soil over the tender crop until the attention of the sparrows is drawn off to something else. They seldom attack the pods of early Peas, though sometimes they injure late ones. They are often blamed for greater damage done by tomtits or "oxees" of the Scotch. There are four different kinds of the Parus or tomtit that frequent gardens, all of which destroy insects, but at times some of them are very mischievous. P. major, or saw-sharper, called so in Norfolk from his shrill notes, like the sharpening of a saw, is the one which in winter taps on bee-hives and snaps up the bees, and it is remarkable that Forster in his "North America," Vol. I., speaks of its having been met with in "latitude 40° north, and longitude 48° west, about 920 miles from land." I leave this curious fact to notice that it is the P. cœruleus, the blue-cap, which does most damage to late Peas, and also picks holes in the stalk ends of Pears. Mr. Knight, who raised some of the best kinds of new Peas, had much

trouble in preserving them from those little plagues. It is rather difficult to entrap or shoot the little depredators, and perhaps it is best to defend the Pears with nets; and to keep these birds from Peas it is good to grow plenty of Sunflowers and Poppies, whose seeds they prefer to green Peas. I may state, that during the past season a small covey of hawfinches, or grosbeaks, attacked my Pears, which was the first time I had seen those rather rare birds alive. As some of them were young they may have been bred in this locality.

Cossey Hall Gardens. J. WIGHTON.

THE CULTIVATION OF THE PRIMULA.

WHERE is there a plant which during the autumn and winter months is so gay or beautiful as the Primula? It is also very useful for exhibition or decorative purposes, or for filling the flower-vase or bouquet. By artificial light some of the varieties are very brilliant. During the last season a number of very beautiful double seedlings have been brought before the public, especially those of Messrs. Windebank & Kingsbury, of Southampton, who at the present time possess some very splendid seedlings.

Where high cultivation is aimed at, care must be taken to keep the plants healthy at all times. I generally sow the seed early in March, or in April, in pans placed on the front shelf of the greenhouse or vinery. I find that to bring the seedlings up well nothing is so good as putting a square of glass over each pan, and as soon as the plants appear I remove this to prevent their being weakened. When strong enough, I pot them into small 60's, using for soil half leaf mould, loam, and a little silver sand. I keep them in a close frame for a few days till well established, when I give air freely on all favourable days. Early in May I repot the plants into 32's, using the same description of soil as before. I now plunge them in a cold frame in a shady situation for the summer months, and in the end of July I repot into their blooming-pots, 24's, using a mixture of half loam, leaf mould, and a little rotten dung and silver sand. I then replace them in the frame as before, and am always very careful not to allow them to get dry during the summer, as nothing is so injurious to them. Early in September I remove them to the greenhouse, and I thus secure a good supply of bloom for the autumn and winter months.

Crabwood, Southampton. J. C. HIGGS.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY.—Although the Fruit Show held from the 9th to the 16th of December had but little claim to the title of "International," there was, nevertheless, a very respectable display both of fruit and vegetables, good without being remarkable. Especially worthy of notice were the fine collections shown by Mr. Lewis Solomon and Messrs. Webber & Co. of Covent Garden, containing, as they did, numbers of those magnificent Pears which are to be seen at this season decorating the shop-windows of the Grand Row of that market. Such Pears are purchased at almost fabulous prices from French growers, who must derive a good profit from their cultivation, but for the most part the only recommendations which they possess are their size and beauty; indeed one of the kinds, Uvedale's St. Germain, known also at Paris as Belle Angevine, is a stewing Pear. It seems that at Paris these Pears are let out by the fruiterers for dinner parties, and one of the French gardening periodicals relates that a gourmand, after fondly eyeing a dish of them for a long time, much to the dismay of his entertainer requested that one of them should be cut. However, there was no escape, a Pear was cut up into a number of pieces, the party tasted, and but tasted, disgust was depicted on every countenance, they might as well have eaten a Turnip; but whatever their disgust might have been that of their entertainer was greater, for when the fruiterer's bill came in one of the items was "an Angevine Pear, 70 francs." Our lively neighbours have, perhaps, a little exaggerated the price to improve the story, for these Pears may be had in London for about half that sum and

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even less, still the anecdote may serve as a warning to those who set fruit on their tables merely for show. To return to the Fruit Show, eight Uvedale's from France in Messrs. Webber's collection weighed nearly 20 lbs., and a dozen grown in Bedfordshire 22¾ lbs., these last measuring 12 and 13 inches round. Easter Beurré, Joséphine de Malines, and some others from the same firm were also very fine. Excellent Apples of several kinds, Pines, Grapes, Melons, Oranges, Pomegranates, Shaddocks, Prickly Pears, Litchees, fruit of a Solanum from St. Michael's, and various Nuts were also shown in this collection. That from Mr. Solomon was very extensive and fine, comprising twelve Pines of the Jamaica Cayenne, and Queen varieties, several kinds of black and white Grapes, Uvedale's and other Pears of a similar character to those noticed above, remarkably fine Apples, Truffles, Asparagus, green and blanched, green Peas, and other vegetables. Mr. Ingram, gardener to Her Majesty, had the Gold Medal of the Society for the best collection of fruit and vegetables produced in the garden of a Sovereign, an award which he well deserved. The six Smooth-leaved Cayenne Pine Apples which he exhibited were between 6 and 7 lbs. in weight, remarkably even in size and appearance, and beautifully ripened. Grapes, excellent Apples and Pears, and a numerous and good collection of vegetables were the other subjects shown by Mr. Ingram. Excellent collections of Apples and Pears were shown by Mr. Whiting, gardener to Mrs. Hope, The Deepdene, Dorking; Mr. Ford, gardener to W. E. Hubbard, Esq., Horsham; Mr. Smythe, gardener to Lord Sondes; R. Webb, Esq., Reading; and Mr. Dixon, Holland House. Mr. S. Snow, gardener to the Countess of Cowper, Wrest Park, Beds, contributed six Uvedale's St. Germain Pears weighing 13 lbs. 13 oz., a good weight, but not equal to that which is sometimes attained by this variety, of which a single fruit has been known to weigh upwards of 3 lbs. Miscellaneous subjects consisted of several Orange trees in pots from Messrs. Rivers & Son, and bearing very freely; some very fine Pomegranates grown in an orchard-house without artificial heat by Mr. Downing, gardener to T. Grissell, Esq., Norbury Park; a fine mass of Eucharis amazonica from Messrs. A. Henderson & Co.; and vases formed out of Custard Vegetable Marrows, very tastefully filled with Violets and Ferns, exhibited by F. J. Graham, Esq. of Cranford.

In the colonial and foreign department the Fruit Growers' Association of Nova Scotia exhibited a fine collection of Apples, mostly of large size and highly coloured, also Pears. The Horticultural Society of Copenhagen sent a similar collection, in which were a number of varieties well known in this country, such as Reinette du Canada, Court Pendu-Plat, London Pippin, King of the Pippins, and Claygate Pearmain Apples, and Seckel, Uvedale's St. Germain, and Beurré de Rance Pears. There were, besides, a number of those high-coloured soft, light Apples which are very beautiful to look upon but very insipid to eat. Malta sent Oranges, Lemons, and others of the Citrus tribe, and vegetables which did not contrast favourably with those grown in our colder but richer soil, but the period at which the show was held was adverse to a good exhibition from that island. From Victoria came models of fruit and vegetables; from the Cape of Good Hope dried fruits; and from India tropical fruits in great variety preserved in spirits, and some of them not distinguished for the sweetness of their perfume. The Vegetable Show was good, though not large, and it had a neater appearance than vegetable shows generally present; there was not that roughness as if the things had just been plucked from the ground and thrown down on the tables, and there was not, on the other hand, that amount of trimming which deprives vegetables of their natural character; moreover, with a few exceptions, everything was neatly labelled. The principal exhibitors were Mr. Ingram, whose collection has been already noticed, Mr. Whiting, Mr. Budd, gardener to Earl Darnley, and Mr. Ford. Nova Scotia contributed thirty-eight dishes of Potatoes mostly large and very coarse, Onions, Beet, Parsnips, &c., and a fine collection of Gourds was shown by Messrs. Barr & Sugden. The Nuneham Park Onion was shown by Messrs. Cutbush, and a collection of Potatoes by the Rev. G. W. St. John. Northumberland Champion Celery was sent by Messrs. Dewar of Newcastle-on-Tyne; it is white, solid, and of excellent flavour. From the same firm came also Dewar's Improved Short-top Beet, a variety with a bright dark red flesh, and excellent when baked.

At the Scientific Meeting of December 19th, in consequence of a recommendation of the Floral Committee that a medal should be granted to Mr. Veitch for a fine collection of Orchids and other plants exhibited on that occasion, W. Wilson Saunders, Esq., the chairman of the meeting, announced that the Council had taken the subject into consideration, and had decided on having a new medal struck to be called the Lindley medal, only to be given at Tuesday meetings, and as a medal. This will afford additional inducement for exhibitors to support these meetings, and will, no doubt, be the means of adding greatly to their interest. They are to be resumed early in the present year, though the date at which the first is to be held is not yet fixed. It is to be hoped that this year they will be as interesting, instructive, and well supported as they were in the past. The grant of this medal is an earnest of the desire which the Council have to increase the use-

fulness of these meetings, which are a common ground on which scientific and practical men can meet and interchange their views, and many interesting facts are thus elicited; moreover last year the display of flowers and fruit at some of the meetings was very large, and the room was crowded by many who at an ordinary exhibition would have seen, admired, and gone away no wiser than they came as to the nature, history, or uses of that which they had seen.

Southampton Horticultural Society.—The monthly meeting of this Society was held on Monday the 11th of December; the Rev. Dr. Cary in the Chair. There was a large attendance of members and friends. Among the subjects exhibited were blooms of that splendid climber the Ipomœa Horsfallia, as also a plant of the Calantho vestita rubra, both of which were shown by Mr. Boyce, gardener to H. J. Buchan, Esq., who gave an interesting description of the characteristics of each, and his method of cultivation. Messrs. Windebank and Kingsbury sent some beautiful double Primulas of various shades of colour, among which was one of the original double white, so that the great advance made in them might be seen. In a choice collection from Mr. Hayes was a plant of the Poinsettia pulcherrima, the floral bracts of which, being fully expanded, rendered it an object of great admiration. Mr. Blandford, gardener to — Standish, Esq., sent a collection of twelve sorts of Apples, many of them very fine. Mr. Dean read a paper on spring flower-gardening, in which he adverted to the objection made to the modern system of parterre flower-gardening, that everything was sacrificed for the sake of obtaining gay bloom for a few months; pointed out how by a judicious arrangement of certain hardy blooming plants during the winter months, and especially in the spring, this objection might be overcome; gave a list of plants suitable for the purpose, with instructions as to their propagation; and concluded by asking the members to put the system he had advocated into practice. Mr. Whitehorn then read an interesting paper on that inexhaustible subject the Potato disease, in which he attributed the disease to our having departed from nature in our treatment of the plant, and pointed out the mode of cultivation which he considered most in accordance with its true character, and best calculated to ward off the attacks of the disease. After a sharp passage-of-arms between Messrs. Whitehorn and Kingsbury on some of the points advanced in the paper, Mr. Higgs referred to the labours of Mr. Paterson in improving the stamina of the Potato, and said that he looked forward to such an improvement in its constitution eventually that it would become impregnable to the attacks of the disease. Mr. Dean gave some information respecting a number of Paterson's and other Potatoes which he had grown during the past season, showing that the newer varieties had withstood the attacks of the disease whilst older sorts had succumbed, and laid great stress upon the importance of thoroughly exposing the seed before storing for the winter.—A. D.

Gardeners' Royal Benevolent Institution.—His Royal Highness the Prince of Wales has graciously consented to accept the Presidentship of this Institution, vacant by the death of the Duke of Northumberland, and has made a donation of twenty-five guineas to the funds. The chair at the next anniversary dinner is to be taken by Sir C. Wentworth Dilke, Bart., M.P.

Caledonian Horticultural Society.—The proposition for the amalgamation of this with the Edinburgh Horticultural Society, mentioned in our last Number, was adopted on the 6th December, and a Council elected from the two bodies under the presidency of the Duke of Buccleuch. The Experimental Garden has been transferred to the Board of Works, and will be converted into an arboretum in connection with the Botanic Garden.

Mr. Weir.—A circular has been issued by the Royal Horticultural Society inviting subscriptions in aid of Mr. Weir, their plant collector in South America. He was attacked by fever on his return from Bogota to Santa Martha, in October, 1864, and on the fever leaving him he was found to have lost the use of his limbs. Although he has been for some time in this country he is still suffering from almost total paralysis, and Dr. Seymour Haden reports most unfavourably of his case. The Council state in the circular, that they feel they cannot for any length of time apply the funds of the Society to Mr. Weir's support, but express confidence that the Fellows who have benefited so much by the beautiful plants which he sent home will not be unwilling to subscribe to provide for him.

Subscriptions are received by Captain Cockerell, Royal Horticultural Society's Offices, South Kensington, W.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

No attempt should be made to excite a premature growth at this season by keeping a high temperature. From 55° by night to 63° by day should be the highest limits. At the same time the atmospheric moisture should be reduced considerably; water with great caution. Ixoras, Allamandas, &c., if wanted

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to bloom early, may be plunged in bottom heat towards the end of the month. *Orchids.*—These will be mostly in a state of rest, and merely want a comparatively cool and dry atmosphere till they commence their new growth. As soon, however, as they show indications of starting, let them be potted or redressed at once, or the newly-formed roots, if allowed to grow any length, would probably get injured afterwards. Those kinds which grow, more or less, at all seasons will require a night temperature of 60°, with an increase of 10° by day. Syringe the blocks, baskets, &c., each sunny day, and keep the internal air moderately humid by damping the pipes as occasion requires.

GREENHOUSE.

Where softwooded plants are principally grown a night temperature of 40° to 45°, with an increase of 10° by day, will be requisite. Camellias, as they swell their flower-buds, may be encouraged by weak manure-water. Train climbing plants, as they advance, to their respective supports, and guard against damp and mildew by proper aëration and the application of sulphur. *Azaleas.*—Water must be sparingly given, and only when the plants are dry. Give air daily, according to the state of the weather; remove decayed leaves, and any plants infested with thrips should be cleaned at once, by fumigating them with tobacco three or four times, with intervals of a day or two between. *Cinerarias.*—Plants for exhibition should receive their final shift into eight-inch pots—the size required by the principal societies. During this month give the plants plenty of room, and keep them near the glass. The side-shoots must be tied out as the plant progresses; this keeps them from drawing, and, if done properly, forms dwarf, handsome plants. *Ericas.*—Clean glass, good ventilation in mild weather, without exposing the plants to direct currents of cold air, and moderate waterings when requisite, embrace the principal points of treatment for the present month. Avoid much fire heat, as a substitute for which keep up the temperature of the house by some protecting material. A canvas, or even a calico screen, placed over the roof, will do much in this respect; and a temperature three or four degrees above the freezing-point is sufficiently high, if accompanied with dryness. *Pelargoniums.*—This is a convenient as well as proper time to tie out the shoots of plants intended for specimens. Keep the soil in a good state for repotting the July plants, which should be done towards the end of the month. Watch narrowly for green fly, and fumigate the moment it is observed. All dead foliage should be removed as it appears. Fancy varieties require similar treatment; they do not draw, however, if the house is kept a little closer than is desirable for other kinds of Pelargoniums. Give seedlings plenty of room, and water them but sparingly, destroying those that are "blind," or cankered with disease.

PITS AND FRAMES.

Bedding Plants.—Damp is the principal thing to guard against at this season; place delicate plants likely to suffer most in the driest situations; give air liberally in mild weather, removing the sashes entirely on sunny days (except in frosty weather), to dry the surface of the pots. Should mildew appear, dust the infected plants with sulphur. Water will scarcely be wanted, except in cases of extreme dryness, or unless the plants are in airy houses. Protect from frost by covering with mats, &c., by night. *Cold Frames.*—Our remarks on bedding-plants apply equally here. The bottom of cold frames, for wintering plants, should be coated over with asphalt or coal-tar, and laid with sufficient dip, to enable waste water to pass off quickly, by which the surface soon becomes dry; whereas, when it is absorbed by a porous material, it is again given off slowly, and causes a damp, unhealthy medium for plants to winter in.

FORCING.

Fruit.—Those who want ripe Grapes in the end of May or early in June must commence forcing at once. If the border is outside, it will assist the roots to cover it with warm dung, to which additions should be made, so as to maintain a mild heat on the surface; protect this covering from rain and snow by thatching, or throwing a tarpaulin over it in bad weather. For forcing thus early the Vines should have been pruned for some time; and now they will require dressing and training. Start with a temperature of 45° by night, increasing it a degree per week. Damp the Vines daily, and keep the atmosphere of the house moderately moist; give air each fine day, and let the thermometer range 10° or 12° higher by day than by night, with a slight addition during sunshine. Prune, dress, and train succession vineries and Peach-houses to be in readiness when required. To obtain early Strawberries, plunge some of the earliest-potted plants in a mild bottom heat under glass; this will bring them forward gently, and towards the end of the month they should be removed to a situation with a moderate temperature, and fully exposed to light, which will assist them to throw up strong trusses of bloom. Sow Cucumbers and Melons for the first spring crops in a good bottom heat; when the plants are up, keep them near the glass, in order to encourage a stocky growth. *Forcing Flowers*—Where Roses, Lilacs, Deutzias, American plants, &c., are forced for decorating the greenhouse or sitting-room, well-established plants of the above should be plunged in a very mild bottom heat, to forward them; a deep frame or low pit answers well for them. As the buds develope themselves remove the plants to a warmer house; keep them near the glass, and

frequently damp their foliage. Hyacinths, Narcissus, Tulips, &c., with Lily of the Valley and Dielytra spectabilis, may have the same treatment.

KITCHEN GARDEN.

Should frost occur, wheel dung and compost to the vegetable ground, and rough-dig or trench vacant ground. A crop of early Peas and Broad Beans may be sown in a warm situation. Sow likewise a few Early Frame or Short-top Radishes and Horn Carrots for an early out-door crop; cover the beds with straw or litter till the plants appear. Give the autumn-planted Cabbages a dressing of soot on a moist day. Protect Parsley, young Lettuce, and Cauliflower plants in frosty weather, and give air to those under glass whenever the days are mild, to keep them from drawing.

FRUIT GARDEN.

Apples, Pears, Plums, and Cherries should be pruned in mild weather, and those against walls or espaliers should be afterwards nailed or tied in. Cut away the old wood from Raspberry stools, selecting from three to five of the strongest canes for bearing; these may be tied up to stakes or rods, but not shortened back till the spring. Defer pruning Gooseberry and Currant bushes till spring, as many of their buds are often destroyed in hard weather by sparrows and other hard-billed birds. All kinds of hardy fruit trees may be planted in open weather, if their roots are covered directly afterwards with half-decayed dung or litter, to protect them from frost.

FLOWER GARDEN.

Keep the turf, edgings, and gravel walks clean; well roll the latter after frost or rain, to keep them firm; let the borders and beds, if not planted up, be kept neat by raking over the surface. Protect half-hardy plants from frost with fern or branches of evergreens stuck round them, and cover the roots of such plants with sawdust or old tan for the like purpose. *Roses.* — Beds of Tea-scented or China on their own roots should be covered with 3 or 4 inches of ashes or old tan, or with 5 or 6 inches of moss. Worked plants of Tea-scented, if in an exposed situation, had better be taken up and placed under a south wall, covering the heads with litter; or if not removed, tie fern or cuttings of evergreens on their heads, or cover them with a cap of calico painted and strained over a dome made of split Hazel. These will last for years. Lose no time in planting as soon as the frost is out of the ground.

FLORISTS' FLOWERS.

Auriculas.—The plants will remain quiet another month. The directions given in our last should be attended to. If the frames are in an exposed situation, more covering will be required during severe weather. *Carnations and Picotees.*—Keep the frames open on all occasions when the weather will permit, water only when absolutely necessary. A good fumigating during this month is very beneficial by keeping aphides under. It gives the plants a yellow appearance for a time, but they soon recover, and are none the worse for it. The compost for these plants should be well turned and frosted during the winter, keeping snow from it. *Dahlias.*—Choice new varieties, if a large increase is desired, may now be put to work in a steady heat. Roots of others, if not keeping well, or rotting down the stem, may also be started; for once fairly started they are safe; and if but a few plants are required from them, they may be placed in a cooler house. Pot-roots are the most easily wintered; these should remain under the stage of the greenhouse till March, when they should be started. If not already done, trench the ground intended for Dahlias next season, and it should remain thrown up rough till May. *Fuchsias.*—These, after cutting them in and repotting them in fresh soil, may now be placed in a gentle moist heat to start them. Young cuttings strike very readily at this season, and will make good plants for June and July. The Fuchsia is easily grown, but succeeds best in a rich soil. Seed should be sown this month. *Hollyhocks.*—Cuttings will require careful watching this month, to prevent their damping off. Go over them daily, and strip them of decayed leaves, and dry them when the weather will admit of its being done without injury to the cuttings. The old stools and established plants will remain nearly dormant for another month, and will take no harm if wintered in a suitable pit or frame; a cold, damp situation should be avoided. They winter well in the front of a greenhouse; but this cannot often be spared for the Hollyhock, which is anything but an interesting subject in the winter months. *Pansies.*—The soil for blooming these in pots, which should have been prepared in summer, must be well turned and kept tolerably dry, in readiness for use the first week in February, when they require their final repotting, pegging out the shoots at regular distances. The plants should be raised near the glass, and grown as hardy as possible. The frames should only be closed during very bad weather. *Pinks*, after severe weather, should be gone over on a fine day, pressing firmly into the soil such as may have been loosened by frost. Very choice varieties should be protected from cutting winds, by placing small propagating-glasses over them during their continuance, removing the glasses as often as it is fine. *Tulips.*—These, if they have not yet made their appearance above ground, will only require the ordinary treatment of covering during rain or snow. The frost must be severe indeed to injure them before they make their appearance, particularly if the beds have been kept dry.

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Early Albert.

CHROMO-LITHOGRAPHED BY F. WALLER, 9, HATTON GARDEN.

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EARLY ALBERT PEACH

WITH AN ILLUSTRATION.

It is not often that in this country we have had to deal with new varieties of Peaches. Even those horticulturists who have devoted more than usual attention to the raising of new fruits, have not succeeded in producing many sorts of this fruit; and of those that have been produced there are not any, that we are aware of, that have displaced any of the older kinds, or which have taken rank with them. Successful as Mr. Knight was with Pears and Apples, we do not call to mind varieties of Peaches he succeeded in establishing, and it was not because he did not turn his attention in this direction. He made many attempts to produce what should be improvements on existing varieties; but, with the exception of Acton Scot, an insignificant little early sort, and Mountaineer, a large, coarse, and worthless variety, we are not aware that he produced any others. The only other great originator of fruits was Mr. Williams, of Pitmaston, but we know of no Peach that can trace its origin to his skilful hand.

How this should be we cannot say, seeing the success that has attended the essays of Mr. Rivers. To this subject that gentlemen has devoted much time, and has brought a large amount of intelligence to bear upon it; and it is perhaps to these reasons that his success is mainly attributable. So great has been the good fortune attending Mr. Rivers's labours in this direction, that he has already produced varieties of Peaches sufficient in number, and in various characteristics and seasons, to be amply sufficient to supply every want, even if another Peach did not exist besides those that he himself has produced. We hope to be able from time to time to bring these various new kinds of Mr. Rivers before our readers, and in the meantime introduce them to one which, we believe, is one of the earliest of these productions.

The Early Albert Peach is of rather large size, roundish, and frequently higher on one side of the suture than the other, and with a dimpled apex. Skin greenish yellow, and covered with small red points on the shaded side, but deep crimson, becoming sometimes almost black, when grown against a wall and fully exposed. Flesh white, very tender, and melting, with a faint brick red tinge next the stone, from which it separates freely, and with an abundant, sugary, and vinous juice, which is very rich. It is a first-rate early Peach, ripening in the beginning of August.

THE CULTURE OF THE CINERARIA.

During the autumn, winter, and spring there are few plants that add more to the gaiety and beauty of the conservatory than the many improved varieties of the Cineraria. They are also invaluable for in-door decoration; the colours of some of the sorts are very brilliant by artificial light. That a plant possessing such qualities should become very popular is only a mere matter of course, and hence the great improvement that has been effected in it of late years. The last year or two have, however, added but little in the way of improved varieties to those we already possessed. Let me express the hope that the coming season may be productive of some good sorts.

In place of growing a number of named varieties, as was the custom a few years ago, many gardeners and amateurs now raise a quantity of plants annually from seed. They find their cultivation attended with much less trouble than growing plants from offsets of named sorts; they also find them generally

flower much earlier, so that they come in useful for in-door decoration during the winter months; and the loss of the plants, owing to the dry atmosphere of the rooms, is of little consequence, as a fresh quantity can be easily grown from seed for another season.

Formerly, I grew a number of the best named sorts then out, but often lost one or more of them after they had done flowering. I also found that even when I had the offsets potted as early as possible, and with every care and attention afterwards with regard to shading, shifting, and watering, I could rarely bring the plants forward enough to flower freely before the end of February.

Since I have taken to growing seedlings I have had the plants in flower in October and very fine during the winter months, when they are most valuable. I generally make two sowings—one in the first week in April, and the other in the last week in May. The plants from the April-sown seed flower during the autumn and winter months, and those from the May-sown seed during the winter and spring.

I sow the seeds in well-drained pots or pans, using a compost of one part of light friable loam, and two parts leaf mould, with a little sand. I cover the seeds very lightly, place the pans in a little heat, and keep them as near the glass as possible. As soon as the seedlings are large enough they are pricked out into pans or boxes and then put into a little heat; in a short time they will be large enough to be potted-off singly into small pots. The plants from the seed sown in April will be large enough to be potted off singly towards the middle or latter part of May. A cold frame will then suit them very well, keeping it rather close until they begin to grow, when air should be given freely during the day. They must be well attended to in watering, and also in shading in very bright weather; after the 1st of June the lights may be taken off at night if the weather be mild and warm. About the middle of June the plants will require shifting into larger-sized pots, using a compost of about equal parts loam and leaf soil, with a little white sand; when potted the whole of them are placed at the back of a north wall, where they receive a little of the afternoon's sun. I give them no shading, nor any protection whatever, but they are well attended to in watering.

About the beginning of August I shift the plants into the pots in which they are to flower. The plants are left in the same situation until towards the latter part of September if the weather is mild; by that time they will begin to throw up their flower-stems; they are then taken into the houses and placed near the glass, where they have plenty of air, and where they are safe from frost. Some of the most forward plants begin to flower in the latter part of October, and the others bloom in succession during the autumn and winter months. The night temperature is not allowed to fall below 45°.

The plants from the May-sown seed are treated in a somewhat similar way, with the exception that I have some spare lights put over them in hot weather and during thunder showers. I give them their final shift in the latter part of September. When housed they are kept in a little heat, but air is given at all favourable opportunities. If any green fly appear on the plants, they are immediately fumigated with tobacco paper.

It will be seen that I have very little trouble with the plants, and as most of them are used for in-door decorations they are generally thrown away after they are brought out. If the seed has been saved from a good collection of choice kinds (and seedsmen will find it their interest to be particular in attending to this matter, as few people will be satisfied with a lot of worthless seedlings), out of a quantity of plants there will sometimes be a few good varieties —these should not be used for in-doors, but be left to flower in the conservatory or greenhouse. After they have ceased flowering, the flower-stems are cut down

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to within 3 or 4 inches of the pot, and the plants are kept under glass until the end of May or beginning of June, when they are planted on a border at the back of a north wall. I have plenty of peat or leaf mould put in around them; they are then well attended to in watering until they begin to grow, after this they receive very little attention until the beginning of August, when I have the whole taken up carefully and potted; the small plants are put into as small pots as they can be put into without damaging the roots; the larger are divided into two or more parts, and these also are put into as small pots as they can be got into. When all are potted they are well watered and put into a cold pit or frame and kept rather close, and in bright weather shaded until they begin to root freely into the fresh soil, when air is given freely. When the plants have made some fresh roots and commenced growing they are all put into tolerably large-sized pots, the compost used being loam, cowdung, and sand. The plants are then carefully attended to during the winter and spring months in respect to watering, tying out shoots, and thinning leaves and weak shoots. These plants make beautiful specimens for spring flowering.

A quantity of plants raised from offsets cannot be brought sufficiently forward to flower so early as plants raised from seed sown in the first week in April; there are also much more labour and attention required in their culture during the autumn, when gardeners have so much other work to do in propagating, and in lifting and potting bedding plants. But even if first-rate varieties from offsets could be had in flower as early as plants from seed, gardeners would still hesitate to use them for in-door decoration. With seedling plants it is a very different case—they are raised annually in almost any quantity with very little labour or attention, and the loss of the plants after they have done flowering is of no consequence.

We want good seedlings, however; if we can obtain flowers of good form, well and good, they will be all the more valued; but clear, bright colours we must have, we hope not to be disappointed.

Stourton. M. Saul.

POINSETTIA PULCHERRIMA.

At one of the recent meetings of the Floral Committee at South Kensington, some plants of Poinsettia pulcherrima were produced from the gardens of the Royal Horticultural Society. They were from 2 to 3 feet in height, the foliage vigorous and healthy, and the "floral leaves" of an intensely bright vermilion colour. Their culture reflected great credit on Mr. Eyles, the Superintendent of the Gardens, who adopts as his method of growth that prescribed in the *Gardeners' Chronicle* for 1864, page 125. A summary of this mode of treatment may be of interest to many of your readers. The plants should be grown from single eyes taken from the hard well-ripened wood of the previous year. They should be placed in a very sandy peat, and the pot plunged into a brisk bottom heat, or a dung-bed, when they will root freely. They should then be potted in single pots, still keeping them in the frame until well established, after which they should be placed in a stove, keeping them near the glass. From the beginning of June till the end of September they should be kept in a greenhouse, and afterwards in the stove. Here they will soon put forth their brilliant heads of floral leaves, and make a beautiful display. Proper attention must be paid to watering, &c., during the time they are in the greenhouse. As it is a plant liable to be attacked by red spider, the under part of the leaves must be well syringed occasionally, but after the coloured leaves appear, syringing should cease. Young plants produce the most brilliant-coloured leaves; but when old plants are depended on, they should not be cut

back until they have partially dried off, or they will bleed so as to injure the plant. Good drainage is required, and the soil used should be equal parts of light loam, peat, and leaf mould, well mixed with silver sand.

R. D.

REMARKS ON FRUIT TREE CULTURE.—No. 6.

The proper way of putting into practice those operations upon the branches of fruit trees which may be called restrictive, and the object of which is to induce the production of a habit of fruitfulness in opposition to a vigorous and luxuriant growth of wood, is certainly not by a severe use of the knife in winter pruning; but the operations referred to must be performed during the summer, when all the energies of the trees are in full activity, and, therefore, better able in a short time to repair any damage which a temporary interruption of their development may occasion. In point of fact, however, these operations must commence with the earliest growth of the young shoots, by the entire removal of all that are superfluous. When I say superfluous shoots, I mean not only all such as will not absolutely be required to keep the trees furnished with a gradually increasing development of wood, but also such as will not be necessary for the maintenance of an equal proportion of bearing-spurs, or wood, as the case may be. This process is commonly called disbudding, and much of the future well-doing of the trees will depend upon its judicious performance. It is necessary that the operation should be performed gradually and at short intervals, at first by the removal of foreright and ill-placed shoots, and afterwards by the gradual removal of supernumeraries until the operation of disbudding becomes blended and carried on simultaneously with those of spurring and stopping, which will have to be practised more or less until a short time before the trees become comparatively dormant, and must be so modified in some cases and extended in others as to meet the peculiarities which different trees will develope in the course of growth. For example, we must consider that fruit trees subjected to artificial management are much more likely to be affected in their general constitution than such as are growing naturally and unchecked; and thus, with an equal amount of care in planting, the development of one will be strong, vigorous, and luxuriant, whilst that of another will be weakly and have a tendency to the precocious development of fruit; so that the latter will require encouragement and even stimulation, whilst the former must be very much checked.

Herein lies my principal reason for desiring to caution the young practitioner against the too common practice of generalising the treatment of fruit trees; on the contrary, their constitution and peculiarities should be studied. The trouble is no greater when the principle is understood, than is involved in an indiscriminate method of proceeding; and success, the result of a skilful application of principles, will be much more satisfactory to the operator than the results of chance. My experience on the subject has been mostly confined to trained wall fruit trees, and I have not had much among pyramids; but what I know on that subject convinces me that the principles which regulate the early removal of superfluous wood and the subsequent operations are applicable in both cases, and produce corresponding results, but that pyramids have this advantage—that the system admits of a much greater latitude, and even affords facility for the production of fruit-bearing spurs. At the same time I must observe, that although in the culture of pyramids it may seem to be very desirable to be able to show evidences of skilful treatment in an excessive development of fruit-buds, and it may also seem quite natural that we should retain as great a number of them as possible in order to ensure a good propor-

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tion for final selection; yet in practice I feel convinced, reasoning from analogous circumstances, that it is bad policy on our part; because excessive blossom-bearing is a very exhausting process, and when a branch which is only calculated to carry two fruit to perfection is allowed to expend its energies and strength in bringing twelve or even fifteen up to the thinning point, it is quite evident that the greater proportion of the strength and energy so expended is for all practical purposes completely thrown away, and that the fruit remaining, although probably fine in the usual acceptance of the term, is not so fine or even full-flavoured as it might have been had some of the wasted strength been husbanded for its use. If such a waste of strength is permitted to pass unobserved in trees which may certainly be considered comparatively well managed, how great must be the waste where the fruit is never thinned until it reaches the stoning point, and the removal of superfluous growth takes place when the shoots have grown 6 or 9 inches.

The full advantages to be derived from good management can only be secured when the necessary operations are systematically conducted in a gradual and progressive manner, that no strength be wasted in the production of either wood or fruit which must eventually be removed. Now, as the application of principles, although common to all in most respects, yet vary in the mode in different varieties, I think it will be better when I resume the subject to select a few of the more popular sorts of fruit, and make a few remarks bearing on the practical application of those principles to each.

Redleaf. JOHN COX.

THE PREMATURE RIPENING OF PEARS IN 1865.

WITH me the most of the late-keeping Pears ripened in 1865 quite out of their usual season, and I fear this is general by the reports from Covent Garden Market of the short supply of Pears now coming in there. The only varieties left here for use at the present time are Suzette de Bavay, Prince Albert, Ne Plus Meuris, Belle de Noël, and Léon de Clerc de Laval, a variety that will keep as hard as a stone till June or July, and seldom become melting even then. Doyenné du Comice, Colmar, Surpasse Crasanne, Glou Morceau, Easter Beurré, and Beurré de Rance, all anticipated their usual season in ripening, and are now all consumed. No doubt the very dry summer in the midland counties, and the great heat of September and beginning of October, would cause Pears to ripen prematurely, and this must have had some effect on their keeping-qualities.

I had this autumn some very large specimens of Pears, ripened in pots, of the following sorts:—Marie Louise, Huyshe's Victoria, British Queen, Beurré Diel, Doyenné du Comice, Beurré de Rance, and Glou Morceau; but these came in true to the season, having had plenty of water, when trees in the borders were suffering from the drought in September.

Welbeck. WILLIAM TILLERY.

ON PEARS AT CHRISTMAS.

THE past season was favourable for ripening Pears, especially late ones; but there have been complaints respecting their quality, and their not keeping. I had, however, the following kinds at Christmas:—Broompark, from an espalier, good, but nearly done; also Van Mons Léon le Clerc. Beurré de Rance, off walls with south and east aspects, was excellent, but, as usual, some of the fruit ripened at the end of November, while others of the same gathering may keep

until March; the same of Knight's Monarch, which is one of the best late Pears, whether grown upon walls, espaliers, or standards. Winter Crasanne was meally and worthless off a south-west-aspect wall. Joséphine de Malines, both from walls and espaliers, was of excellent quality, but the whole crop ripened before the usual time; also Beurré Gris d'Hiver off a west-aspect wall. Beurré Magnifique from an espalier, was very large, but of bad quality, as was the case in the previous season. Vicar of Winkfield, both from walls and espaliers, was very good, but nearly over. In bad seasons that beautiful-looking Pear may be classed with those for cooking. Figue de Naples, from an espalier, possessed a high flavour, somewhat like that of Marie Louise. Glou Morceau and Easter Beurré, off an espalier, were both of fine quality. Prince Albert, from walls with south and west aspects, was gritty and of bad flavour. Much has been said of this new Pear, which resembles Beurré de Rance both in size and colour, but not in quality. Mr. Rivers seems to doubt its quality, for he observes that it is "not always good." Ne Plus Meuris, from an espalier, maintained its usual good character, but was ripe too soon. Chaumontels, from walls with south and west aspects, ripened at the usual time, and some of them were nearly equal to those of Jersey. Passe Colmar was inferior, and it is seldom otherwise except when grown on a wall with a south aspect; and Winter Bon Chrêtien the same. Suzette de Bavay was unripe, but promised well; also Jean de Witte. Nouvelle Fulvie, from an espalier, was not ripe. I am doubtful of the goodness of this late Pear; last season it kept until March, and rotted while unripe. Shobden Court was hardly ripe, but of good flavour. I have doubts respecting the proper name of this excellent Pear, which I have grown for some years on espaliers. St. Germain, from a wall with a west aspect, was free from grit and its acrid flavour in bad seasons. Winter Nelis and Marie Louise were over, with the exception of a few which hung upon the trees until the end of November; and, perhaps, if they had not done so I should not have had either of these excellent sorts in good condition at Christmas.

Cossey Park. J. WIGHTON.

THE CULTIVATION OF THE MUSHROOM.

To supply the requirements of a first-class establishment in respect to an abundance of vegetables of superior quality "all the year round" demands some forethought, a good deal of contrivance and a considerable amount of sound practical knowledge. Even under the most favourable circumstances when labour, manure, land, &c., are in abundance, there are still the variability of our climate and the very great and frequent differences between seasons, to contend against; to say nothing of the ravages made by rats, mice, birds, insects, &c.

An abundant supply of Mushrooms during the autumn, winter, and spring months is, however, a very easy matter when plenty of horse-droppings can be had. As in the artificial culture of the Mushroom we do not need the agency of light, we dispense with glass roofs, and with them all the unceasing attention to air-giving, &c. They will grow in any out-house, shed, or cellar, where the temperature does not fall below 50°. Even in midwinter, if the beds be made with a good thickness of droppings, say from 2 to 3 feet, and are kept well covered up with dry hay, Mushrooms can be grown in abundance. They will not, however, come so quickly as in a moist genial atmosphere of 60°. When a large supply is needed it is a wise economy to fit up a house specially for their culture. There is no regular Mushroom-house here; but as there is plenty of shed room, and as the fireplaces for the vineries are in some of the sheds, I have

no difficulty in finding suitable places for making beds—those for midwinter work I make in the warmest shed, in which there are two fireplaces, but at a considerable distance from the beds, so that I can keep up the temperature of the shed pretty easily without dunging the beds too much. The following is the mode of culture that I adopt; I am not aware that there is anything new in it—on the contrary, it may be as old as the hills for anything I know; it is, however, invariably attended with the most satisfactory results:—I have the horse-droppings brought every morning from the stables and spread out in a shed; they are not allowed to heat, nor to get over-dry. When there is a sufficient quantity for a bed I have it made as follows:—5 or 6 inches of droppings are spread on the floor the length and width of the intended bed, and a barrowful or two of maiden loam mixed in among them. The whole is then well trodden all over. I may here remark that the loam should neither be too dry nor too wet, it should be nearly in the same condition as soil that is fit for potting plants; I may also remark that the droppings should also be in the same condition. When the whole has been made tolerably firm by treading, a few inches more of droppings are placed on it, mixing some loam with them; this also is made firm by treading or beating; a fresh layer of droppings with loam mixed is added and made firm, and fresh additions are made until the bed is of the required depth, which is, for autumn work, from 18 to 20 inches; for winter, from 2 to 3 feet. The surface of the bed is made level, and a few pointed sticks are then thrust into it. If the materials have been in a fit condition and plenty of loam used, the beds rarely ever heat to an excessive degree. In general I have them spawned a week or at most ten days after they are made, and immediately afterwards I have them earthed up with good loam. Of course such beds are made under my personal superintendence. When the droppings have been fit, I have made beds, and spawned and earthed them all in one day, and with the most satisfactory results. Indeed, I have a bed which has been in bearing for several weeks past, that was made, spawned, and earthed up on the last day of September. Of course I do not recommend this plan for general adoption, I merely mention it to show that Mushrooms can be grown in abundance on beds made, spawned, and earthed up on the same day, when the materials are in a proper condition.

By using plenty of loam there is no fear of the droppings heating too much, and there is a gain of ten days or a fortnight, which is a matter of some importance occasionally, when Mushrooms may be wanted by a certain day, and the making of the beds has, from a pressure of other work or various causes, been put off ten days or a fortnight too long. I put the spawn in about 10 inches apart every way all over the beds, using pieces a little larger than a hen's egg. Smaller bits will do, but I think the larger size the safer, as in case the beds heat a little too much they will not suffer injury to the extent that small pieces may. The spawn in the latter may all be destroyed by a little extra heat; but if the pieces be tolerably large, it seldom happens that the spawn in the centre is all destroyed unless in cases of very great heat, which will rarely occur in beds made as mine are, with the droppings not too moist and plenty of loam mixed with them.

About six weeks after the beds are spawned and earthed up I have plenty of Mushrooms. Sometimes they will come a few days sooner, and at other times they are a few days longer. After the heat begins to decline I always keep the beds covered with dry hay, regulating the thickness of the covering according to the heat of the bed, the temperature of the shed, and the weather. By this means, and by paying some attention to the condition of the loam used in mixing with the droppings, also to that used for covering the beds, I very seldom have recourse to watering these. I have very little trouble with

the beds after they are made and spawned. I obtain an abundance of beautiful Mushrooms, and I have some beds at the present time one mass of Mushrooms. Of course plenty of good horse-droppings is the main point, and getting them fresh from the stables and spreading them out in a shed, then mixing plenty of good loam among them when making the beds. When these matters are attended to and the spawn is good, then Mushroom-growing is a very simple affair indeed. I am sure nothing can be more simple than my mode of growing Mushrooms, and its results are most satisfactory; I get plenty of fine Mushrooms, and rarely have I seen them better, even when very great labour has been bestowed on their culture.

I need hardly mention how useful a good supply of Mushrooms during the winter is to those who have to provide for the wants of a first-class establishment. Those who can get a tolerable quantity of horse-droppings and have any out-house, shed, or cellar where they can make some beds, need not hunt for plenty, if they follow the plan I have pointed out above. I may mention that I find it a good plan to make one large bed or two tolerable ones early in the autumn; one has then plenty of Mushrooms to start with, and by making beds at intervals of a month or six weeks the supply is easily continued through the season.

Stourton. M. SAUL.

PHAJUS GRANDIFLORUS.

WHAT a glorious old Orchid for winter-blooming—suitable for vases and in-door decoration as well as for the warm conservatory! It looks admirable in any position, its majestic spikes towering above its Flag-like foliage! A dozen well-grown and well-bloomed plants of this, with the same quantity of the charming sweet-scented Zygopetalum Mackayi, will beautify and perfume any house of moderate proportions, and that amply enough to gratify the fastidious senses of an eastern monarch.

Those who possess a plant-stove need not despair of growing and flowering the Phajus most successfully. Some old plants at this place, which, I believe, have been inmates of the Pine-stoves for the last twenty years, bloom annually most profusely, and are in as good condition now as ever they were. The cultivation of the Phajus is so extremely simple and so well known to all who grow plants, that I consider it would only be uselessly taking up the valuable space of the FLORIST AND POMOLOGIST to enter into minute details. I would, however, remark, that I find it most advantageous in order to bloom this Orchid successfully to remove the plants for three months in the height of summer to a cooler position—say under the shade of Vines in a late vinery—that is, after they have completed their growth. This, I consider, as far as my practice goes, to be the main point in order to ensure success. A No. 24-sized pot I consider large enough, for if flowered in larger sizes the plants are, in the majority of cases, useless for in-door decoration. A few larger plants will answer in a large house.

Wrotham Park, Barnet. JOHN EDLINGTON.

CULTURE OF THE NEPENTHES, OR PITCHER-PLANT.

A FEW remarks on these wonderful plants may not be out of place, for we seldom see them grown at all, and still more rarely in a flourishing condition.

The plants here are grown in boxes a foot from the front lights, and immediately over the hot-water pipes in the Amherstia-house, and of course obtain

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a high moist temperature the whole year. Early in spring I removed the old soil, which was in a very sour state, put a large quantity of broken pots at the bottom of the boxes for thorough drainage, and replaced the soil with lumps of very fibrous peat, charcoal, silver sand, and live sphagnum chopped into about one-inch lengths. I gave the plants a good watering, and sponged them twice a-day, keeping the floor continually watered, and the evaporating-troughs full of water, maintaining at the same time a temperature of from 70° to 75° at night, and from 85° to 90° by day, with shade from bright sunshine.

The plants soon commenced to root and grow. Young shoots started from all the old hard wood, and had a pitcher at each leaf. The boxes were soon full of roots, and from the loose nature of the potting material and the continual watering required, the soil sank below the top of the box an inch or more. A top-dressing of baked cowdung, chopped into about half-inch pieces, and mixed with silver sand, was therefore given; also a covering of chopped live sphagnum to make the surface look neat, and to encourage the roots to that part. The plants made a wonderful growth, so much so that there is not space to train the shoots, but the house being enlarged will give more training space.

I give these few hints to show the benefit arising from the use of live sphagnum for plants in general requiring moss, for there is no comparison between the vigorous growth of Orchids, Sarracenias, &c., in the live, and that made by them in the dead and partially decayed material; also, that some plants generally grown in poor light soil when in good health and vigorous growth, will flourish in a rich soil if the drainage is good and watering is carefully attended to.

J. T.

POTATOES.

A small collection of Potatoes, exhibited at the recent International Show at South Kensington by the Rev. G. W. St. John, Woodstock Rectory, deserves a special notice both for the interest attaching to the collection, as well as for the really admirable way in which they were staged. The sorts were Daintree's Seedling, second early, a wonderful cropper and very good-looking, and Hogg's Coldstream, first early, a very fine-looking sort, said to be very good indeed for small gardens where only one sort is depended on. Both these are round white Potatoes, and were awarded first-class certificates. Daintree's Seedling was also shown as two kidney-shaped kinds, the one an improved Lapstone-shaped root, and the other a longer and thinner kidney-shaped tuber. These had been selected from the parent round variety, and were both awarded first-class certificates. A good-looking early half-round variety was named Beehive, and was said to be a seedling from the Fluke. A very handsome and good-sized round variety was named Fenn's Onwards; it is a new seedling second early Potato, the result of a cross between Jackson's Seedling and the Fluke; it was awarded a first-class certificate. The raiser is the author of those instructive papers in recent Numbers of the "Journal of Horticulture," signed "Upwards and Onwards," an admirable motto for a practical horticulturist. Of other white kidney-shaped roots there were some excellent tubers of the old Cobbler's Lapstone, a good second early; some fine specimens of the original Fluke Kidney; British Queen, a first-rate sort, but which produces coarse foliage, and should therefore be grown on a poor soil; and Shutford Seedling, a medium-sized root, Lapstone-shaped, and a good forcer. To each of these four kinds first-class certificates were awarded. Two other white kidney-shaped roots were Huntingdonshire Kidney, supposed to be a synonyme merely, a medium sized, but very handsome bulb, and Mitchell's Early Albion, a good forcing kind. Some admirable specimens of the old Fortyfold were also produced; it is said

to be one of the best varieties for mashing for the dinner table. The only red kidney-shaped Potato was Haigh's Seedling, a second early; it has a spare foliage, and though not a large cropper, the individual tubers are large and very heavy, and it is also one of the most nourishing varieties grown; to this a first-class certificate was also awarded.

The manner in which these were named furnished an instructive lesson to exhibitors, each label being fastened to the dish in such a manner that it could not become detached, and the methods of writing and affixing the labels presented a marked contrast to the slovenly manner in which some other collections were named. R. D.

NOTES OF THE FLORAL AND FRUIT COMMITTEES.

January 23rd.—This was the first meeting of the year, and proved to me a most interesting one. Prominent was a splendid collection of plants from Mr. W. Bull, of Chelsea, which occupied more than one side of the Council-chamber. Generally they were ornamental-foliaged plants out of bloom, but of a very choice and valuable character. The Lindley medal was awarded to Mr. Bull by the Society for the group. Conspicuous was a pan of a species of Achimenes, remarkable for its very handsome foliage, the leaves being bronzy green, with a broad stripe up the middle of a creamy white colour. There were also some handsome female plants of Aucuba japonica with large bright red berries; Chamæranthemum reticulatum, from Brazil; Pandanus ornatus, to which a first-class certificate was awarded; Anthurium magnificum, Herrania palmata, a very handsome pendulous-foliaged Palm-like plant, to which a first-class certificate was awarded; Gleichenia hecistophylla; a white variety of Dielytra spectablis, from China; Gymnostachyum Verschaffelti, &c. From Messrs. A. Henderson & Co. came a very handsome variety of Lastrea Sieboldi, which was awarded a first-class certificate.

A special certificate was awarded to Mr. Veitch, of Chelsea, for an extremely interesting group of flowering Orchids, and other plants. It comprised several beautiful varieties of Lycaste Skinneri, the marking in a few cases being very rich indeed; Barkeria Skinneri; Odontoglossum cordatum; Angræcum eburneum, to which a special certificate was awarded; the beautiful Cattleya Warscewiczii delicata, C. bogotensis, &c.

Mr. B. S. Williams also received a special certificate for fine plants of Angræcum eburneum, A. eburneum virens, and what was said to be a variety of Calanthe vestita, in this case the spot in the flowers being of a deep gold colour; and a first-class certificate for Cattleya species nova. From Mr. W. Earley, of Digswell Park, came a seedling Begonia, named Earley's Hybrid, with large and striking pink blossoms. Dr. Pattison, of St. John's Wood, produced a plant of Angræcum sesquipedale, with two expanded blooms; and from James Bateman, Esq., of Biddulph Grange, came Phalænopsis amabilis, Dendrobium moniliforme, Thibaudia macrantha, and T. bracteosa.

But little fruit was present at this season of the year. Some Uvedale's St. Germain Pears were sent by Mr. George F. Wilson to show the colour that can be obtained in an orchard-house. A first-class certificate was awarded to Mr. R. H. Betteridge, of Abingdon, for a medium-sized good-looking seedling Pear, the flavour of which was said to be excellent. There were also present fruit of the following Pears: Beurré de Flandre, Suzette de Bavay, and Eliza d'Heyst. The following Grapes were sent by Mr. W. Tillery, of Welbeck Abbey, to show their keeping qualities: West's St. Peter's, Trebbiano, Welbeck Black Tripoli, and Muscat of Alexandria. Some fruit of Pyrus nepalensis were sent from Southampton by Mr. W. B. Page, sen. The Rev.

M. J. Berkeley stated that the genus Pyrus was supposed by some to be identical with Cydonia, and it did indeed differ from it, mainly in the form of construction of the seed-vessels. He also stated that the fruit of Pyrus nepalensis would no doubt be useful for preserving, but was too hard to be eaten as other fruit for dessert.

At the meeting for the election of Fellows, &c., presided over by Lord Henry G. Lennox, M.P., a paper was read by Mr. Hungerford Pollen, F.R.H.S., of the South Kensington Museum, "On the Management of Plants, Fruits, and Flowers for Exhibition." Mr. Pollen contended that foliage plants and plants in flower should be grouped together and not separately, as is generally done; and he thought this could be done without destroying the effect of either as a group. In the arrangement of plants he would have Nature imitated as far as possible, and in the first place in regard to the quality of the light thrown upon them. This gave rise to the question, Should plants be exhibited in a building, in arcades such as those employed at South Kensington, or under tents? He had a decided preference for tents. Nature diffuses light all round her objects, not merely on them; while in regard to works of art, it was necessary to concentrate the light in parts only in order to get shade. Flowers are not done justice to unless an extraordinary quantity of light is brought to bear upon them. Thus the first great requisite is an abundance of light. Secondly, the plants should be mingled together, so that the bloom should be relieved by the foliage. The effect of Geraniums, for instance, without this aid, became in a great measure lost, a green background being required. The eye cannot take in such an excess of colour unrelieved, and parts of the effect are thereby lost. Thirdly, that on which plants should be shown. This should be Nature's green grass or turf. Boxes of grass were recommended to be used to furnish a background for many things. Fruit should also be exhibited on grass, while white paper should be used as a background for cut flowers. The Rev. Dr. Rock recommended the use of branches of the Lycopodium, or Lady Fern, as being well adapted to show to advantage the colours of fruit; and Mr. Wilson Saunders pointed out as another side to the question, the necessity of plants being so arranged that judges could decide which were the most meritorious; that plants should be so placed that the judges could come to a decision rapidly; and that while it was necessary that flowers should be made as attractive as possible to the eye, it was equally necessary that they should be made instructive, also which were the best plants in any section of the exhibition. R. D.

CULTURE OF LILIUM LANCIFOLIUM.

Notwithstanding the immense popularity of the new Lilium auratum from Japan, the several fine varieties of Lilium lancifolium will always be great favourites, and most justly so, and I would urge cultivators to direct attention to these kinds, and try to get improved form and deeper colours. The late Mr. Groom, of Clapham, had he lived longer, would have introduced some improved strains, for I quite recollect seeing in his nursery in bloom, just before his death, some fine high-coloured varieties of improved form, the petals being quite free from curves or curls on the margin, and being, moreover, broader than they are in the Lilium lancifolium generally. All, or most of his fine stock of Liliums were distributed at the sale which followed his death, and some of the best strains are no doubt about, but difficult to meet with. Our chief aim in preserving the characteristics of this fine species and its varieties should be to continue breeding by seed from the finest-coloured varieties, with the view of getting

richer-coloured kinds and better form. I cannot say how much is to be done by crossing with other species, but I hope to see some of our florists try their hands at improving the existing varieties of the grand old L. lancifolium.

Great attention is paid to the culture of this Lily in various parts of Yorkshire, and it is astonishing what very fine examples are to be met with repeatedly at very small country shows in the autumn. It is no unusual thing to meet with pots containing from five to eight roots, with from fifteen to twenty superb blooms on each.

The plan generally adopted by good growers is to pot-up the roots early in February, using pots about 11 or 12 inches in diameter for three or four fine roots, and larger-sized pots for a larger number of roots, but I think it a mistake to grow so many roots in a pot when good blooming roots can be had. A good compost may be made up of fibrous sod, well-decayed leaf mould, and well-rotted frame manure, all chopped and not sifted, and with some sharp sand run in with it, so as to make a good porous compost. A good-sized crock and about 1½ inch of rough crocks should be used, and over these a few lumps of fibrous sod should be placed. Many make a mistake in potting too near the top of the pot. I prefer filling the pot with soil to within 5 inches of the top, on which the bulbs should be placed and covered, leaving fully 2 inches of space below the top, for this reason: Those who have given a moment's attention to the growth of the Lilium must have observed the quantity of young fleshy roots sent out from the base of the flower-stem, and to the full development of these roots especial attention should be directed. As soon as the shoots are of a moderate height, and have become pretty firm, fill up the pot to the rim with similar compost to that used for potting, adding a little more manure. This will give them an efficient top-dressing, and the stem-roots will speedily become matted into it, and the flowers will consequently become large and plentiful. The main point in the culture of the Lilium is to develope the stem-roots, a point too often lost sight of.

After potting they should be placed in a cool shed or frame, or under a stage where light is attainable; and as soon as the soil gets dry and cracks from the side of the pot, give sufficient water to moisten the soil without saturating it. Many allow the young growth to be started too early and become drawn, which should be avoided. The pots should rather be kept quite cool and exposed to the light, for the Lilium is a perfectly hardy plant, and should be grown hardy. The best plan is to treat it as an out-door plant as far as possible, by standing the pots out of doors after the winter is over, taking care to shelter them from spring frosts and blistering winds. Of course, at the blooming time they should be under cover in bad weather. When they have done flowering, the pots can be placed on their sides, and as soon as frosty weather sets in, removed to a dry shed, and be kept quite dormant, dry, and undisturbed until potting-time. Everybody knows what a glorious plant it is for autumn decoration.

Shipley, Yorkshire. W. Dean, *in Gardeners' Chronicle.*

CONCERNING PETUNIAS.

I devoutly trust that I am right in assuming that horticulture can now be credited with a desire to throw off the allegiance to those large and ungainly single flowers of the Petunia grandiflora section, and also those uncouth and uninviting double flowers which had their day, and with thankfulness be it said, a very short one too. It was simply a liking for mere novelty that made these double flowers popular—if such a transient career can by any license be translated into popularity. To beauty they could make but little claim. What

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was there in them to fire a florist's heart with rapture and enthusiasm? And I hope, for the sake of true horticulture and its glorious past, all the poetry has not yet been, nor is it yet likely to be, pressed out of it, though rapidly ceasing to be a distinct branch of horticulture. At best, the double flowers were but malformations without pretensions to regularity of petal to give the desideratum of form, without harmony and distinctness of colours—flowers that would effectually puzzle the most competent judge to compile for them the points of quality by which he would decide on their merits. With but very few exceptions they did not yield that profuseness and continuity of bloom that are found in the single kinds. They were neither brilliant nor showy, and their utility as decorative plants was considerably over-stated. Let them perish! and may no resurrection ever rend the grave to which they will be consigned.

And then those hateful-looking, loose, irregularly-shaped, easy-flowering varieties, without a single pretension to form, but with a great deal too much substance, generally having the colours as inharmoniously blended together as to be quite confused, as if Nature had for once been guilty of a bad piece of artistic execution. In fact, the "beauty" of many of them was as little discernible as that of a toad would be whose skin had become slightly suffused with a violet hue. They were absolutely worthless as decorative plants, nor were they suitable for bedding-purposes. They have been well described by M. Ch. Naudin as "monsters, which the prevailing fashion regards as so many marks of perfection."

For bedding-purposes (and used as bedding plants, what can be much more attractive when judiciously grouped?) nothing can be better than a well-formed pure white flower of the P. nyctaginiflora species, and a good purple of the P. violacea species, and to these can be added the bright crimson variety with white throat like Countess of Ellesmere, and the parti-coloured variety Madame Ferguson. I remember a few years ago being much struck with the beauty of a Petunia-bed at Elsenham Hall Gardens, Bishop Stortford. The bed was formed of four lobes, each lobe being planted with a variety in the way of the foregoing colours, except that instead of using the variety with the white throat, there was a seedling bright crimson flower, something like Purple Prince, but having a throat heavily pencilled with clear violet. Though the weather had been, and still was excessively dry, the bed was a "blaze of floral beauty," and the afternoon sun beaming on it, brought out sharply and vividly the individuality of colour of each lobe of the bed, and at the same time merged this individuality into a blended harmony of a most agreeable character. From the intercrossing of the two species alluded to above, which can be done most readily, have been derived hybrids as fertile as their parents. Of these hybrids M. Ch. Naudin has observed, "In the first generation all these hybrids are alike; in the second they vary in the most remarkable degree, some reverting to the white species, others to the purple, and a large residue showing all the shades between the two. When these varieties are fecundated artificially by each other, as is the practice of some gardeners, we obtain a third generation still more parti-coloured; and continuing the process we arrive at (the most) extreme varieties." The fancy of the hybridiser will actuate him to select what form he pleases as his models, whether symmetrical in form and harmonious in colour on the one hand, or grotesque in outline and ill-defined and confused in colour on the other; but the variations that are to find a place in the garden should at least partake of the characteristics generally considered essential by florists—form, colour, substance, distinctness, &c., and not be hideous and unlovely formations merely, that have neither attractiveness nor utility to recommend them. To these essential points must be superadded by the hybridiser, short, stiff, and yet vigorous

habit; a propensity to flower freely; and as far as it can be obtained, a hardiness that can sustain to some extent, when bedded out of doors, the effects of a cold and inclement period that will occasionally bring up the rear of an English summer.

Quo.

THE ALBERT SPROUT.

This hardy Sprout promises to be a very useful addition to the kitchen garden. It is a hybrid between the Drumhead Savoy and the Brussels Sprouts, the head manifesting most unmistakeably the parentage of the former. The Sprouts, which are very large and a little blistered like a Savoy, are freely produced on the stalk, but as seen by me, not so near to the base of the stalk as in the Brussels Sprouts. Its unusual lateness is its great recommendation, being fit for use when other Sprouts are over.

T. K.

ON PROPAGATING CENTAUREA CANDIDISSIMA.

At the request of a lady who was on a visit here last autumn I send the following account of the way in which I propagate this Centaurea—a plant with which I was very successful last summer; and I hope that it may prove satisfactory to the readers of the Florist and Pomologist to know that this favourite plant may be increased with some degree of certainty, for I hear of many failures in propagating it in different quarters, instead of a good stock having been secured for planting out in May.

My own stock was but small, till I began to grow it in the same way as I have done Cineraria maritima for some time.

In May I plant a few of the strongest plants in some by-place for the purpose of furnishing cuttings, taking care that the soil is well enriched either with good rotten dung or leaf mould. By July the plants will be large enough to be used for making cuttings, which are made as follows:—

I take up the plants and cut them to pieces with a sharp knife; every piece with a leaf and an eye will make a plant. After having been prepared, the cuttings are laid on the potting-bench for a few hours that the wounds made by the knife may dry, and, consequently, that the danger of damping-off may be diminished, for the shoots of the Centaurea are very full of juices; on no account, however, should the cuttings be exposed to the sun, as they would flag and never recover. As soon as the wounds made by the knife have somewhat dried over, the cuttings should be pricked out under hand-glasses in a light rich compost, containing plenty of coarse sand. I prefer road sand and leaf mould in about equal quantities. The soil having been well mixed, and sifted through a rather fine sieve, some open spot should be selected for the hand-glasses, so that these may receive all the sun possible—by no means should they be shaded.

Immediately after the cuttings have been inserted they should be well watered, and the glasses ought then to be put on and kept close for some time. Very little water should be given to the cuttings till they begin to grow, which they will do in about six weeks. They should then be potted-off, using pots of different sizes, according to the quantity of roots which they may possess; some will require 48's, others small 60's but too large pots should not be used to winter them in. The cuttings after having been potted should be placed either in a close pit or frame till they have emitted fresh roots, and about the beginning of October they should be removed to the warmest and driest

end of the greenhouse or stove; if placed near the flue they will be much benefited by its proximity, as they suffer very much from damp during the winter. They then require little water, but when it is needed a good soaking should be given.

The Centaurea is a greater favourite with me than the Cineraria maritima, as it is more easily kept within bounds. I find that the Cineraria will not bear the knife without dying back; this spoils the effect of a good bed, as I experienced last autumn in the case of a bed filled with Amaranthus melancholicus, then Cineraria maritima, and Perilla nankinensis in the centre, the other side being the same. These were planted in strips, and the effect was very good and pleased every one till the Cineraria began to fail. This year I intend to use the Centaurea for the same purpose.

Elsenham Hall Gardens. WILLIAM PLESTER.

THE PROPAGATION OF VERBENAS.

MY design is not so much to develope any new method, as to give a prominence to what is well known to many, and yet may, perchance, be very acceptable to some. A good system or method is worthy of a wide propagation, and now-a-days preachers of all kinds are not required to declare so much what is new, original, or startling, as what is useful, to the purpose, and valuable.

The autumn propagation of Verbenas finds but few advocates, and is not generally adopted, except where necessity admits of no exception to its unyielding rules. The difficulty of autumn propagation lies in the great hazard attending the wintering of the plants. The method generally observed is to place a number of cuttings in 60-pots, using a soil in which there has been mingled a good quantity of coarse sand. In this they will root readily, and the path is smooth up to the time when these store pots have to be removed to their winter quarters. The position usually assigned them is a high shelf in a heated house, the shelf being so situated that the store pots can be close to the glass. They are watered very sparingly, are kept quite clean, have air on all occasions when it can be administered, and no drip is permitted to fall upon them. The great enemy mildew will attack them let them be wintered as they will, and this method is considered one of the best to moderate the ravages of this pest. How unsatisfactory such a method has proved to many a propagator the pages of the gardening publications have frequently attested. Many a man has looked over his stock at the beginning of March, and has marked with sorrow and disappointment how great an inroad decay has made among them. He loses his faith in the recognised formula which has been commended to him by many whose names are deserving of confidence; but he feels that he cannot stretch it to cover the experience gradually taking hold on him, that a new and more assuring method can be found and applied. This has been found, and, better still, applied with great success and the most cheering results. The operator, a gardener of considerable eminence in the north, shall develope his plan in his own words:—"Early in August a quantity of each variety of Verbena that I intend to use is struck not in heat, but in cold frames, without putting them in either pots or boxes. A layer of half sand, half leaf mould, is laid over the surface of the frame. Into this are put the cuttings, which are selected from the shortest and least-drawn from round the sides of the beds. They are kept close through the day, and sometimes in calm warm evenings the sashes are entirely drawn off for a few hours. They root under such circumstances almost without making any growth, or without becoming drawn. When rooted they are pricked into pans 7 inches deep and 14 inches in diameter. A few

crocks only are used at the bottom of the pans. A good layer of old Mushroom dung is then placed over the drainage, and then the pans are filled up with loam and finely-sifted horsedung, with a slight addition of sand. The cuttings are pricked into these about 2 inches apart, and placed for a few days in the cold frame, and are soon fully exposed night and day, except during continued rains. In such wet soil they make a very different figure to those struck in heat, and they are either left in the cutting-pots or potted off into small pots. If a system is to be judged of by its results, this method is all that could be desired."

To this outline of experimental doing is supplemented a statement of the fact that the plants "do not require to be picked over once—not a spot of mildew appeared on them," so satisfactorily does the method work; and not even Purple King, a variety that is very apt to be affected by mildew, was stained or discoloured by it.

From these plants come the cuttings from which are raised the plants required for "bedding-out." They are planted thus:—"The cuttings are put into large boxes which will contain 500 each, and as soon as rooted they are pricked off into [smaller] boxes, always using rich soil;" and here they remain till "bedding-out" commences, when they are lifted by the hand and placed where required. "Such plants fill their beds far quicker, and keep up a better succession of bloom than miserable rusty plants struck and kept in poor sandy soil till planted out."

This method, so simple, and yet so thoroughly satisfactory in its results, is best commended from such considerations. The plants from which it is intended to derive the "vesture of beauty" during the summer months should always be spring-struck, young, but vigorous and healthy. Autumn-struck plants should be employed only by the propagator, not by the bedder-out; for when the best possible effect is wished for they should not be employed to produce it. The young plants can be propagated to a great extent when such a system of wintering is attended with satisfactory results, and the stern necessity too often inseparable from the old system, which at best could only yield decimated ranks, of using old plants, will be in a great measure removed, if not wholly set aside. E. W.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

In addition to the patronage of Her Majesty the Queen and H.R.H. the Prince of Wales, that of their Royal Highnesses the Duchess of Cambridge, the Duke of Cambridge, and the Princess Mary of Cambridge has been extended to this important undertaking. The Treasury have also granted the use of the site of the Great Exhibition of 1862 at South Kensington, for the purposes of the Great International Show, and tents, or a suitable building to the extent of three acres, will be required. Further, the Lord Mayor, Aldermen, and Court of Common Council of the City of London have unanimously granted the use of their ancient Guildhall for the banquet to the foreign visitors, &c. Each day the dimensions of this great undertaking appear to widen; and in May next a spectacle will be presented altogether beyond what has ever been witnessed in the annals of British horticulture. The donation fund already exceeds the sum of £3,400, and the guarantee fund that of £4,200, but a much larger sum than the former will be required, and there is no doubt will be subscribed, before the 1st of May next. All who are interested in

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horticulture should endeavour to do their best to make the scheme a great national and horticultural success, and to show the superiority of English horticulture over that of any continental nation.

ON WASPS, FLIES, AND EARWIGS.

EVERY one knows that wasps have been scarce and flies plentiful during the last hot and dry season; and as heat favours the increase of both pests, it may be worth while to inquire why wasps have been scarce. It was not owing to the scarcity of queens to found colonies, for plenty of them were bred in the previous season, but rather to the fact of their having been cut off during the severe weather in March; and thus the old saying has failed, "A Plum year is a wasp year." Although, however, the fruit escaped the attacks of wasps, it has been much damaged by flies and earwigs. Wasps act the swallow's part among insects, and thus their scarcity may account in some degree for the abundance of both flies and earwigs. It is somewhat surprising to see how glibly a wasp can catch a fly—not by a crafty net like a spider, but by snapping it up with its mandibles. It will then carry off its prey with a clean swoop. In fact, wasps are hawking insects, and perhaps devour more flies and their eggs than large dragon flies, which are few in number, and only fly about late in the autumn.

Respecting earwigs, I am but little acquainted with their history, but the young are found mixed up with the old, are of a whitish colour, and increase in size with age, which shows that they are bred from eggs. I may note that all insects are of their full size when they come from the chrysalis; the slight difference in size between some of the same species is owing to that of the grubs before they passed into the pupa state. This reminds me that lately a friend sent me a large green grub of the death's-head moth, which fed on Ash leaves, and soon became a chrysalis. I kept it among soil in a flower-pot, covered with gauze, in a hothouse; yet though buried in the soil, it always managed to get to the surface. In about five weeks it was hatched, and is now before me, a fine specimen of that most singular-looking moth, and when teazed it rises up and squeaks like a bat.

To return to earwigs: They have wings, but I never observed one fly, nor make the least attempt to use its wings when falling down. They hide, many together, during the day; but are also found in pairs or alone. It is at night that they do most damage, both to fruit and flowers. Various plans have been tried to destroy them, and perhaps the old one of placing hollow bean stems amongst wall trees, and in the morning shaking the pests out into a pot of water, is the best. I need hardly notice that of placing a small flower-pot on the top of a Dahlia stake, for that is well known.

Cossey Park. J. WIGHTON.

NEW BOOK.

Les Plantes à Feuilles Ornementales en pleine Terre—Botanique et Culture. Par COMTE LÉONCE DE LAMBERTYE. Paris: Auguste Goin, Rue des Ecoles, 82. Part I. Solanum.

THIS, as its title implies, is the first part of a work on those plants with ornamental foliage which are so extensively and successfully employed in the public gardens of Paris. For the most part natives of tropical or semi-tropical climates, they present a rich luxuriance of growth but rarely found in the vegetation of more northern lands, and this, combined with the novelty of

Clianthus Dampieri flore albo rubro-marginata, another of Messrs. E. G. Henderson's plants, and sent out by them under the name of marginata elegans, forms the subject of the second illustration. The flowers being pure white distinctly bordered with bright scarlet, will form a splendid contrast with those of the now well-known species, which in other respects they resemble.

Royal Vineyard Grape is represented in the third plate. As this variety has been frequently exhibited by Mr. Williams, of Holloway, it is now tolerably well known; its merit, moreover, has been marked by a first-class certificate from the Fruit Committee of the Royal Horticultural Society. The thinness of the skin of the berries, and the fine Sweetwater flavour are two important claims to favour.

In the December part of the same publication we find

Oncidium bicallosum, originally figured in the "Botanical Register" in 1843. By some this has been considered a mere variety of O. pachyphyllum, and whilst M. Lemaire admits that the two come very near to each other, he thinks that the representations hitherto given have not done justice to its merits, and that even now the plant is not so general in collections as it should be, especially when the long duration of its flowers is taken into consideration.

Lilium formosum forms the subject of the second plate, and a full botanical description of the plant is given from the bulbs sent from Japan, to M. Verschaffelt, in 1864. The editor justly complains of the confusion which at present exists among the Liliums, and, therefore, cannot say whether the plant is a species, variety, or hybrid.

Cockade Asters, of the beautiful varieties raised by M. F. Haage, of Erfurt, are represented in the next plate; and in the fourth, Camellia *Contessa Pasolini*, raised by M. Antonelli, of Genoa, somewhat irregular in the form of its petals and in their imbrication, rose, shading off to white at the circumference. The leaves are small and lanceolate, and the plant tall.

A portrait of the late King of the Belgians is the last illustration in this part.

L'Horticulteur Français for January, has a large plate of *Pandanus Porteanus*, introduced by M. Porte from the Philippines. The plant is of dwarf and elegant habit, and is said to be hardier than the other species. The leaves are long and narrow, from 2½ to 3 feet in length, and less than an inch in breadth, gracefully curving downwards, glaucous on the under side, and set with white spines along the midrib, the upper side dark green.

"Flore des Serres," of which we have several beautifully illustrated parts, and some other publications, we must reserve till next month.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society. — The arrangements for the spring and summer Exhibitions have just been issued, and the following are the dates on which the Shows are to be held:—The first, for Camellias, Hyacinths, Tulips, Crocuses, Chinese Primulas, forced shrubs, &c., is to take place on the 15th of March; the second, for early Azaleas, Roses, Cinerarias, Auriculas, Cyclamens, &c., on the 12th of April; the third, for Stove and Greenhouse plants, Azaleas, Orchids, Pelargoniums, Roses in pots, &c., on the 3rd of May; and the Rose Show on the 28th of June. All these dates fall on a Thursday. In addition, there are to be Saturday Shows throughout the year, at which money prizes are offered for various subjects, according to the period of the season. At a Show to be held at the same time as the International Exhibition, special prizes are offered by his Grace the Duke of Buccleuch, Mr. W. Wilson Saunders, Lady Dorothy Nevill, Major Trevor Clarke, Dr. Hogg, Mr. G. F. Wilson, Mr. A. Scrutton, and the Proprietors of the "Gardeners' Chronicle," the Council, except in the last two cases, giving one-half the amount of the prizes so offered as a second prize.

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Flowering of Dasylirion longifolium.—A plant, believed to be of this species, flowered last year in the Botanic Garden at Liége, and during the development of the scape observations were made on its rate of growth. The plant had a stem upwards of 3 feet high, and was first observed to be preparing to flower on the 18th of April, and on that day the height from the edge of the box in which the plant was growing to the top of the scape was 6 feet $8\frac{7}{16}$ inches. By 7 A.M. on the 19th it had grown nearly 2 inches, and by 5 P.M. $3\frac{1}{4}$ inches more. On the 20th at 7 P.M. the increase since the last measurement was $2\frac{3}{4}$ inches, at 5 P.M. $3\frac{3}{16}$ inches; 21st, 7 A.M. $2\frac{4}{16}$ inches, 5 P.M. $1\frac{3}{16}$ inch; 22nd, 7 A.M. $2\frac{3}{16}$ inches, 5 P.M. 2 inches; 23rd, 7 A.M. $2\frac{1}{8}$ inches, 5 P.M. 4 inches; and this was the greatest increase between any two observations. The height from the edge of the box was now 8 feet 11 inches, or an increase of 2 feet 2 inches in five days. The rate of increase now became slower, averaging for the next five days $1\frac{6}{16}$ inch from 5 P.M. to 7 A.M., and very nearly the same from 7 A.M. to 5 P.M. On the 29th at 7 A.M. the height was 10 feet $5\frac{4}{16}$ inches, and by the same hour on the 1st of May the increase was nearly 3 inches, on the 3rd about $1\frac{1}{2}$ inch, on the 5th $3\frac{1}{4}$ inches, on the 6th $2\frac{3}{16}$ inches, on the 8th $2\frac{1}{8}$ inches; the total height attained being very nearly 11 feet 6 inches. As will be perceived by the above measurements, growth was very rapid, and most so in its earliest stages, and the increase was a trifle greater by day than by night, and amounted to 4 feet 9 inches in twenty days.

Sophora japonica violacea.—M. Carrière describes in a recent Number of the "Revue Horticole" a variety of this well-known hardy tree, in which the flowers are produced much later in the season, and instead of being cream-coloured as in the ordinary form, have the wings and keel of a rosy purple colour. It is, he states, a distinct, very free-flowering, and it may even be said pretty, variety. The tree under his care, though only $6\frac{1}{2}$ feet high and 2 inches in diameter of stem, produces a profusion of flowers, whilst the common Sophora only flowers when the tree has become tolerably large. This variety was received from China some years ago.

Doryanthes excelsa.—In the periodical above quoted there is also an account of the flowering of Doryanthes excelsa as well as a coloured plate of the flowers. This species is a native of New South Wales, and although introduced to Europe in the beginning of this century, M. Houlet, the author of the article, states that it has only flowered five times—viz., in 1844 and 1833 in England, in 1862 at Orleans, in 1853 at St. Petersburg, and lastly in 1865 at the Museum of Natural History at Paris. It belongs to the natural order of Amaryllidaceæ, and has bright shining green leaves, 7 feet long and 3 inches wide. These in the plant which flowered were upwards of eighty in number, and gave it the appearance of a handsome Yucca. The flower-stem rises from the centre of the tuft of leaves and attains the height of 14 feet, terminating in a panicle divided into eight parts, each containing from ten to thirteen flowers. These are about 5 or 6 inches across, and of a fine purplish red, with a bract at the base of a deeper red. Altogether the plant had ninety-six blooms. It first began to throw up its spike about the beginning of June, 1864, and the flowers began to open at the end of the following January; they appeared in succession up to the beginning of July, when the flowering ceased, but no seeds were produced. The plant then commenced to die down, and at the end of August it was quite dried up, but the stool afforded some suckers for propagation, like the Agaves, to which the species presents a considerable analogy in its growth. The plant which flowered was very old; M. Houlet had known it for a quarter of a century, and would not be surprised if it were eighty years old. It requires a temperature of not less than 50°, peat soil, and frequent repotting. The roots, as thick as the little finger, are like those of the Strelitzias, and should not come in contact with the sides of the pot; a deep rather than a wide pot is required with plenty of drainage until the plant is large enough to be turned out in the winter garden, where it will produce a fine effect.

High Prices of Flowers.—There was a great scarcity of flowers at Paris on New Year's-day, when it is the custom to present bouquets to friends, and when, consequently, they are in great demand. This year, owing to the failure of forced Roses and Violets, it is stated on good authority that Rose du Roi and Rose de la Reine sold at 15*s.* per bunch of two dozen, and that Violets cost from 4*s.* to 8*s.* per bunch. These were the prices which the growers asked, but at the shops they were, of course, still higher.

Mr. J. W. Mackey, the well-known nurseryman and seedsman of Westmoreland St., Dublin, has just been elected to the distinguished office of Lord Mayor of that city. It is pleasant to observe that horticulture can produce able citizens, fitted to fill the highest civic offices—a fact which has received illustration in the person of Mr. Charles Lawson, recently Lord Provost of Edinburgh, and now again in the person of Mr. Mackey of Dublin.

OBITUARY.

Mr. Thomas Bridges died on the 9th of November last, at the age of 60, whilst on his voyage back from a scientific expedition to Nicaragua. He commenced his botanical explorations in Chili, Peru, and Bolivia when only nineteen years old; and at a later period he made excursions in the Isthmus of Panama,

ground should be prepared for Onions and Parsnips; the time for sowing will much depend on the weather. Onions prefer deep well-enriched soils, and Parsnips deep loams; do not be afraid of digging land too deeply, provided the subsoil is tolerably good. Peas and Beans must be sown for successional supply. Look over the root-stores, and see that seed Potatoes are prevented from growing, by keeping them thin in a cool temperature. Dress with soot or guano Winter Spinach, Parsley, and Cabbage, and sow a little of each towards the end of the month in a warm place.

FRUIT GARDEN.

Proceed with pruning wall trees, as well as trees in the open quarters. Apricots, Peaches, and Nectarines may be pruned and nailed-in towards the end of the month. See that matting, canvas, or other protecting materials are in order by the end of the month. They should then be placed before the above to retard the opening of the blooms, for by keeping these from opening till as late a period as possible, the chance of their setting is increased. Fruit trees of all kinds may yet be planted, observing to do this only when the soil is dry, or nearly so. Spread out the roots regularly, and mulch the surface after planting. Give a surface-dressing of rich manure to Strawberry-beds; do not dig this in, but allow it to remain on the surface: digging only destroys the surface-roots. Prune Gooseberry and Currant bushes; it is a useful plan to plant these in lines 5 or 6 feet apart, and train them to sticks espalier fashion. Clean up the prunings, and burn, or rather char them for top-dressings, and fork over the ground underneath the trees, adding dung or fresh soil when the land is poor or the trees are exhausted.

FLOWER GARDEN.

Wherever the soil has been displaced about the roots of Alpine and rock plants, add fresh soil, or replant them. Anemones and Ranunculuses may be planted, the former for a late bloom. Loamy soil, well enriched with rotten cow-manure, is the most suitable for them, and a situation shaded from the mid-day sun. Protect beds of Russian and Tree Violets from severe frost by sticking a few evergreen branches among them. Deciduous trees and shrubs may be planted in open weather. Evergreens had better be deferred till towards the end of the month, or till March. Turn over and prepare compost for flower-beds, &c. Roses may be planted this month with success. On the first appearance of green fly on the potted plants, fumigate with tobacco forthwith. The necessary temperature for forcing hatches the eggs of the Rose-maggot, than which a more destructive enemy to early bloom does not exist. The first intimation of their existence is a snuff-like powder on the points of the pushing shoots; there three or four may be perceived from amongst the embryo leaves, and they must be closely hunted for, or they will escape detection; and it should not be forgotten, that one maggot will, before it is full grown, destroy many blossoms in their early stages.

FLORISTS' FLOWERS.

Auriculas.—Top-dress without delay with rich soil, and water more freely if the weather continues mild. The boxes should now face the south, and as the plants make growth, increased care and watchfulness will be necessary to protect them by covering during frosty nights; on all other occasions give them plenty of air, also light by cleaning the glass, which will be found necessary after so much covering during the late severe weather. Young plants wintered in small pots should be repotted, to encourage a vigorous growth. *Carnations and Picotees.*—These will require a general cleaning, trimming off all dead foliage. If mild, water those that are starting into growth, if at all dry. Should the majority be tolerably dry at one time, a gentle shower on a mild day towards the end of the month will greatly assist the plants. Keep the frames open as much as possible. Soil for blooming them in should be well and often turned, keeping it dry for use. *Fuchsias.*—Plants intended for specimens for exhibition should now be pushed along in gentle heat—if moist, so much the better—drawing the syringe over them during the afternoon. Young stock should be grown in heat, giving them sufficient room not to draw each other up weakly. Continue to put in cuttings. *Hollyhocks.*—Repot autumn-struck plants, using good rich soil to induce them to make stout, stocky plants, instead of starting prematurely into bloom. The plants being small is of but little consequence, so long as they are not "leggy." Good cuttings, struck this month, if properly encouraged, make excellent plants, and flower in good time; therefore continue to take them from the old stools, and strike them in moist bottom heat. Seed should now be sown. *Pansies.*—Lose no time in repotting those intended for blooming in pots, the soil having been kept dry. Let the plants remain a week at least after they have been shifted before watering them. Give them plenty of air, and keep the lights off as much as possible. Plant out the general stock towards the end of the month, choosing a dry time. Plant out seedlings that have been wintered in pans. *Pinks.*—Stir the surface of the beds as soon as they are sufficiently dry, and fill any vacancies occasioned by winter from those in pots. After severe frost the plants should be firmly pressed into the ground. Pinks recover in a remarkable manner with a little fine weather, and therefore should not be destroyed hastily. *Tulips.*—Protect the bed from heavy rains or snow. Frost during February will do them little harm, unless the bed is in a wet state, and not properly drained.

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LOBELIAS.

1. Peach Blossom   2. Distinction

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NEW LOBELIAS.

WITH AN ILLUSTRATION.

SOME twenty or thirty years ago Lobelia fulgens was a plant frequently met with in gardens, and had expended upon it a great deal of the sort of skill we now see devoted to the production of exhibition flowers. And well it deserved this attention, for a well-grown Lobelia is a really fine object. It is the partial disappearance of such flowers as this that one regrets, and that has, more than anything else, led to the comparative want of variety which is so much complained of in modern gardens. True, we had new varieties from time to time—scarlets fluctuating in appearance between fulgens and splendens, and purples after the type of the old speciosa, but they were comparatively little cared for. We are not without hope that this state of things may be changed. A contemporary, not long since, remarked on the same subject:—

"The Lobelia is, it seems, undergoing the same kind of improvement which is being effected in the case of other flowers, variety of colour as well as size being secured. Scarlets and purples we have long been familiar with, but other colours have till now been wanting, and, strangely enough, the plants themselves have been much less freely cultivated than their beauty has merited. Perhaps this has been owing to the absence of variety; but if so, we cannot but expect to see the perennial Lobelia rise again in popular favour, for in a box of seedlings which has reached us occur several decidedly new colours—pink, carmine, and ruby amongst them, with various intermediate shades."

The flowers to which allusion is made in these remarks were obtained by Mr. Bull, to whom we are indebted for the opportunity of figuring those represented on the accompanying plate. A selection of twelve varieties will be sent out by him in the course of the present spring, and we hope to meet with them in general cultivation, for the Lobelia is in truth one of the grand old flowers which have been pushed aside by the thirst after novelties which has of late years set in; but we anticipate, now that this flower itself has yielded novelties of a very decided character, it may participate once more in public favour, and gain a new hold on popular esteem.

The varieties to be sent out this season are the following, as described by Mr. Bull:—

Annihilator.—Deep rose, shaded with warm violet. Novel and good.

Distinction.—Rose-cerise, with beautiful pink shade, distinct. A pleasing variety.

Excellent.—Bright magenta, with white eye and broad lobes. A very fine variety.

Garland.—Rosy purple; flowers large and well formed. Very attractive.

Glitter.—Bright glowing scarlet; huge flowers, spreading upwards of 2 inches across.

Matchless.—Rich purple, with bright rose suffused.

Mulberry.—Deep mulberry; flowers large. Free compact habit.

Nonsuch.—Upper segments violet-rose, margined with vermilion; under ones intensely bright. Very showy.

Peach-blossom.—Beautiful peach-colour, with fine, broadly-shaped, stout segments. One of the most attractive kinds yet obtained.

Progress.—Bright violet-magenta; of good substance. Large and fine.

Ruby.—Quite new in colour, being a very rich ruby. One of the most beautiful of all.

Theodosia.—Bright carmine; flowers very large. A superb variety.

The way these plants were grown into fine specimens in former days will

be seen by the following abstract from an early volume of Loudon's "Gardener's Magazine:"—"In November take off the suckers and pot them singly in 48-sized pots; plunge in a moderate bottom heat, and a temperature of about 55°. By the middle of January shift into larger pots, and increase the heat to 60°. By the end of February shift again, and increase the heat to 65°. In April shift for the last time into 12-sized pots; remove the plants to the vinery, and supply them copiously with water. About the beginning of June remove to the greenhouse or conservatory. For compost use equal parts sandy loam, leaf mould, and bog-earth. Under this treatment the plants grow above 6 feet high, covered with branches of several feet in length, all beset with a profusion of flowers. In fact they continue in flower from July to October."

THE PRIMULA.

How charmingly gay are these beautiful winter-flowering plants just now! —and what a pity it is that they will not bear a position in the window of a sitting-room better than they do! At this time of year I often walk through the centre avenue of Covent Garden Market to get a peep at the Primulas on sale there; and finer and deeper-coloured flowers can hardly be conceived. Indifferent flowers are rarely to be seen there, just because they would not command a sale.

Just now the Primula appears to be passing through a period of change. A little while ago, and large, stout, and finely fringed flowers of the single purple, and white varieties were thought to be almost the *ne plus ultra* of improvement; but now, in the hands of the skilful cross-breeder, not only are the single flowers being produced in shades of cerise and carmine, but also flaked and spotted, and even edged flowers are finding their way into notice. The old double white variety has passed into flowers suffused with delicate rose, and these again into heightened colours, until large and handsome deep-coloured purple flowers are springing up under the magic spell of the hybridiser. To mere outsiders, so great is the improvement that it may appear as a result of the magician's touch; but to the true florist, who sees in every fresh creation the operation of that inevitable law of progress working in every department of nature, it is the realisation of his bright hopes and ardent wishes.

A notable and well-known instance of variation in the single flowers was that observed in the variety known as Primula sinensis kermesina, in which a bright rosy carmine colour took the place of the dull purple shade so well known to all. As the seed of this variety was mainly obtained from the continent, the flowers were found in many cases to be devoid of the fimbriated edges so greatly desired. Now that seed of this variety—and it is a very pleasing and striking shade of colour—has been produced in our own country, the strain has greatly improved. This has been noticed during the past winter at the Horticultural Gardens, South Kensington, where Mr. Eyles has frequently exhibited some very fine and showy flowers of P. kermesina grown from seed of home saving.

In the hands of Messrs. Windebank & Kingsbury, of Southampton, who seem to be in the van of the advance of floricultural enterprise in the southern counties, the single flowers have appeared in some new, varied, and beautiful forms. Finding that the Fern-leaved varieties of P. sinensis possessed a greater strength than those in ordinary cultivation, they have used them in the course of their experiments.

It may here be stated that in all the beautiful variations the cross-breeder has developed, there appears to be no lack of size or substance in the flowers, nor

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of that fimbriated edge so exceptionally demanded in this flower; for, as it was put by Mr. Thomas Moore in the pages of the FLORIST AND POMOLOGIST some three years ago, it is "a singular fact that, whereas in almost every flower which has been improved by cultivation, the process of improvement has been mainly directed towards securing smoothness of surface and margin, in this Primrose the old smoother-edged sorts are at a discount, and the modern improved ones all have fringed edges! It seems as if floral law, which is generally inflexible, has here given way before some other code."

The lowest form of the variations of the white flower (for to this colour they appear at present to be confined), appears to be that of being slightly suffused with rose, and in other forms there is a greater depth of colour, approaching to cerise, more or less apparent. Some of these flowers—as far as could be perceived those of the lightest and medium shades—have the edges of the fringed petals heavily tipped with rosy purple when the flowers are just expanded, and on a further examination it would seem that this deep edging of colour gets withdrawn from the edge into the body of the petal, so to speak, as the flowers age. Others are faintly spotted with carmine, or pencilled with just-perceptible narrow flakes of the same colour; in others the flakes are broader and more frequent, and have a lilac or pale purple hue, and occasionally a portion of one of the petals is entirely of the last shade of colour. One very novel form was plainly apparent, the flower having a conspicuous brownish-orange centre, surrounded with a ring of white, then a broad ring of pale rosy pink, the edge of the flower being again white. The flowers marked in this manner were remarkably stout and well fringed.

It was curious to observe in the Fern-leaved varieties that the colour of the leafstalks affords no clue to the probable colour of the blossoms, as in the case of the older kinds. This singular fact may be restricted only to those plants that have been crossed; but a fact it is, and that clearly apparent.

The largest and stoutest flowers of the white and flesh-coloured varieties were observed in some instances to possess the germ of a second row of fimbriated edges to the petals. From blooms of this character, fertilised with the pollen of others of a like character, had been developed double flowers of large size and great substance, produced by plants of short, stiff, and vigorous habit—a wonderful improvement on the attenuated specimens of the double white variety, the propagation and preservation of which have given the grower considerable trouble, and caused him no small amount of anxiety.

A few years ago a double variety of Primula sinensis, named atro-rosea, was exhibited by Mr. Turner, of Slough, at some of the London shows, and later, one of the floricultural sensations of the season was some double varieties produced by Messrs. F. & A. Smith, of Dulwich, two of which were considered to be so good, that they were figured in one of the illustrated gardening publications. It was said that they (the double varieties) could be raised from seed; but it would appear this statement was premature, inasmuch as the difficulty has been to obtain seed. Then, again, it would appear that in proportion to the depth of colour in the flowers, there was a certain diminution in the strength of the constitution of the plants, which necessarily interfered with their propagation. Such a statement as this appeared to receive verification from some double varieties shown by Messrs. F. & A. Smith, of Dulwich, as the deeper-coloured flowers looked to be of a weaker constitution than the white and flesh-coloured, while they were also less double. In the Fern-leaved varieties that are double white, there is observed, as has been stated before, a strength and robustness of constitution wanting in the older kinds, and when, as we are led to hope will be the case under skilful fertilisation, heightened colours in double flowers are produced, it will be interesting to note if there is any loss

of vigour resulting from the advance. It is said that the new varieties shown by Messrs. F. & A. Smith were raised by Messrs. Windebank & Kingsbury.

Nor is the Primula entirely free from a tendency to variegation. A few weeks ago some plants of single kinds, the foliage of which was variegated with a pale whitish green, were seen at one of the meetings of the Floral Committee at South Kensington. Messrs. Windebank & Kingsbury have a white variety, which is excellently variegated, a large portion of the leaves being of a yellowish green. It would seem, however, that the very effort to maintain the variegation renders the work of propagation very difficult, at least in their case. This variety is not of their own raising, as it was originally sent out by a London nurseryman. I fear but little will be gained to the Primula from variegation. Professor E. Morren observes that "variegated leaves (the partial disappearance of chlorophyll), are a proof of weakness;" and as there is need for imparting more vigour to the constitution of the Primula rather than detracting from it by encouraging variegation, it must be regarded as but a questionable advantage.

Quo.

COILING VINES.

The veteran of Sawbridgeworth has been lately reviving an old practice, which, like many others, may have some points in its favour; but at the same time a great deal can be said against it. Its great advocate at one time was Mr. Mearns, who, at the time, was gardener at Welbeck, but was afterwards Curator of the Leeds Botanic Garden. Some of the discussions on the subject were ridiculous enough; but to compare them with the practice of pot-Vine-growing of late years makes them doubly so. There are, however, still people who, if not directly, to a certain extent follow some of the rules. At that time it was considered that by coiling a Vine in a pot it brought the fine nut-looking buds nearer the surface, that they broke better, and produced larger bunches. This is quite true, but unfortunately they are of little use when they come. The evil of the practice is that the sap has to travel through the long shoot buried in the cold wet soil, the moisture of which no doubt permeates into the alburnum and affects the sap accordingly, because, we find frequently, both in pot-coiled Vines and old stems laid in the soil a long distance, that the fruit comes on well, sometimes better than in ordinary Vines, up to the time of changing colour, when shanking invariably commences. If the stem of an old Vine before being laid into the soil is cut a little with a saw behind the joints, roots will strike out readily, and the same will be the case with canes coiled in pots; but these roots do not seem to have the same effect as the original; they frequently produce grosser foliage, but the sap does not appear to go through the same purifying process necessary to bring the fruit to perfection.

Something of the same sort of practice often goes on with growing Vines. A makes a good border and plants young Vines that have a large amount of fresh soil and chemicals to excite them into making a splendid growth, and at pruning-time the fine plump buds and large growth lead the operator to pause and consider whether it would not be better to leave some of that fine wood just to get a bunch or two; and that will prove in the end to be the ruin of the Vines, because the wood is not ripened, and never can be, and the consequences to the large fine bunches shown are the same as in the case of young Vines coiled; for although the cold, wet soil is not in contact with the stem, the sap is in a crude state, and when the ripening process commences so also does shanking. B makes the same arrangements as A, but instead of leaving the

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canes long they are cut down to, say, the height of the front light, and the second year's wood alone is looked for. Many amateurs in commencing a little house and a Vine or two bring about this result on their first attempt, and from the Vines going on shanking from year to year, give up what might otherwise have been a source of great pleasure.

F.

REMARKS ON FRUIT TREE CULTURE.—No. 7.

It occurred to my mind the other day, in reference to my remark at page 20, that in the culture of pyramid fruit trees the operator has both a greater scope and facility for so regulating his manipulations, as to induce the formation of fruit-bearing spurs—that there are some guiding principles bearing upon the subject, which it may be useful to remember; and, therefore, before proceeding to remark upon the special treatment best adapted to each kind of tree, I must trouble those who are interested in the subject, to follow me a little more into those ruling principles, because it will smooth our future path, and enable the operator the better to understand the practical part.

In training out a young tree from the commencement—say against a wall, in the first instance, the operator should set before himself the object he has in view. The primary one, no doubt, is to get the wall as speedily as possible covered with healthy fruit-bearing wood; not merely covered with wood of which the fruit-bearing parts are the extremities of the branches, but with fruitful wood distributed equally from the centre to the extreme branches. This is the legitimate object to be kept in view, although we cannot always attain it, even under the very best and most careful management. We can do so for a series of years; but eventually the natural enlargement of the lower part of the branches springing from the central stem will become so great, that there is no room for fruit-bearing wood, and, therefore, a certain radius from the starting point will be devoid of fruit—more or less, according to the age of the tree.

Now, I must confess that I like to see a tree brought into that state where there is plenty of room for development, because, being in full health and vigour, there is something substantial to work upon, and the operator is enabled to take more liberties with the organisation of such trees, in order to influence their future development, than he can with younger trees which, having less development, have a weaker foundation to start from, and are more likely to resent interference with their functions by the production of wood instead of fruit. We must remember that trees do not naturally bear fruit in a young state, but must arrive at a certain stage, under conditions which I have already explained, before fruit-bearing commences. We can only, therefore, produce analogous circumstances in young trees by the process of checking, which of course weakens in the tree the power of development, and to us the power of influencing it; but, with care, this apparent evil cures itself in time, for as the development of parts increases, so also the strength to answer to treatment is increased. In fact, we cannot justly call upon a tree to do more than its strength is equal to without running the risk of materially injuring it; and, therefore, in placing the object in view before our mind's eye, we have to remember that the strength required to fill the wall must be husbanded, but not driven away, otherwise it will be expended at the extremities of the branches, And why is this, but because the tree possesses the tendency, which is common to all trees, to push outwards, and to fill up from the centre—in other words, to extend itself vertically, or upwards from the centre on one hand, and laterally, by the side branches, on the other? Now, the various manipulations to which

we subject fruit trees are mainly intended to counteract this tendency towards vertical growth, because of the limited space to which we are obliged to confine them: for the same reason we are chiefly dependant upon the lateral growth for fruitful wood, and, therefore, must perforce divert the flow of the sap from the vertical into the lateral growth; and herein we find one of those great causes which influence the production of great effects, and which is, in fact, a great secret in management.

In this tendency which most trees possess to grow vertically, we find the reason why good managers always recommended that the centre of trained fruit trees should at all times be kept open: but, whereas many of our predecessors in the profession depended upon winter pruning for the attainment of that object, the more modern system aims at arriving at the same end by the more effectual and rational mode of summer pruning, when the trees are in full growth.

It will thus be seen that the operator in placing before himself an imaginary perfect tree, has to bring a great amount of practical experience, combined with a certain portion of theoretical knowledge, before he can hope to see his ideas carried out; he will know that it is easy enough to cover a wall with wood when the roots have plenty of room for development; but as he wants fruit, and cannot afford either time or space for the tree to exhaust its energies, so as to arrive at a fruit-bearing condition in its own time, he must put in practice artificial methods to counteract natural tendencies. There are only two legitimate methods of doing this: One is root-pruning (see page 8), which may be called cutting off the supplies; and the other is summer-pruning, or cutting off the channels through which those supplies are conveyed and made available for future development. In order to understand this in a simple manner, we must take it for granted that a free development of roots can only take place when there is a correspondingly free development of branches covered with healthy foliage; and supposing the two to be in equal action, take away a portion of one, and the balance is immediately disturbed. Thus, by removing leaves and shoots we check root-action; and, *vice versâ*, if we cut off roots, we check the power of making wood, the difference being only the season of operation; for as pinching and stopping are summer work, so root-pruning is very properly delayed until the trees are dormant.

These, then, are the operations by means of which the primary object of covering the wall with fruit-bearing wood must be attained; and the reason why there is more scope for the production of fruit-spurs in the culture of pyramids appears to me to be that there is no need to remove any of the surplus shoots, but that the whole may be subjected to the routine of pinching and stopping, in order to convert them into fruit-spurs. Trained wall trees on the contrary, which expose only one face to the light, and are limited as to space, must in many cases have two-thirds of the shoots entirely removed, and sometimes even more, otherwise the wood would become overcrowded. And, again, as the principal object of raising walls for the culture of fruit trees is to obtain the full benefit arising from the intercepted rays of heat, it is obvious that the fruit-bearing wood should be kept as near the wall as possible, because during the day it absorbs a great amount of heat, which is given out at night by radiation, and hence all foreright shoots, or such as have a tendency to push outwards, must be kept removed, all of which tends to lessen the space available for the production of fruit-spurs—not that I believe this to be any disadvantage, but the contrary, because, as I before observed, an excessive development of fruit-buds is rather to be avoided than encouraged. I like to see a reasonable amount of growing wood, as well as of fruitful, because then there is hope for a continuous crop; for a great development of fruit in one

season, if unchecked, is generally followed by a barrenness the next, which is a state of things by all means to be avoided. I think the foregoing observations have a material bearing on the subject, and indicate the primary principles on which the necessary practice must be founded.

Redleaf. JOHN COX.

THE NEMOPHILA.

AMONGST hardy annuals, I suppose that there is none so extensively employed, and so universally known, as the above. If we pay a visit to the garden of the most humble cottager a few patches of this will assuredly meet our eye. Although its duration of blooming is rather short the Nemophila is, nevertheless, most attractive during the early summer months, and with repeated sowings at different times its blooming period out of doors may be considerably prolonged.

It is now some years since I saw it employed for decorative purposes in the conservatory, and I feel rather surprised it is not used for such a purpose rather more extensively, as it forms a most beautiful object, especially if bloomed during March and April. For this purpose, seed may be sown in September in small pots, say 60-sized, and the young plants wintered in a cold house as near the glass as possible. Three plants in a pot will be sufficient. In January, should the plants be required to be grown tolerably large, they may be shifted into pots of larger size, and removed again to the same quarters. It is absolutely necessary that they should be kept tolerably dry all through the winter, as over-watering will soon tell its own tale by causing the plant to assume a yellowish hue, a sure sign of bad health.

I find the Nemophila in pots thrives remarkably well in loam and well rotted leaf mould in equal parts, with a liberal addition of old mortar rubbish finely sifted. In this compost, if the pots are thoroughly drained and every attention paid, the Nemophila will grow as strong as the Ice-plant, and bloom most profusely, rewarding those who may not consider it beneath their notice to bestow a little care on such a simple, but, nevertheless, most charming annual.

Wrotham Park, Barnet. JOHN EDLINGTON.

A FEW WORDS ABOUT ROSES.

I SHOULD much like to elicit the opinion of some of the practical contributors to the FLORIST AND POMOLOGIST as to the suitability of the Manetti as a Rose stock for dry soils. I have lately been reading a good deal that has been advanced as to its merits and demerits; but nothing that has been said seems to tally with my own particular experience, which unfortunately is by no means favourable to the Manetti; but in any case, whether I may be right or wrong, fair and impartial discussion upon a subject of such vital importance to Rose-growers cannot fail to prove advantageous to all.

I think there can be no question that the Manetti is the favourite stock of the nurseryman, because it affords him the quickest possible means of propagating a large quantity; and also because of its adaptability to all soils and situations so long as it remains the Manetti and nothing else; but whether it is equally suitable for permanent purposes, and possesses all those characteristics which enable it to perpetuate Roses in their fullest degree of perfection for a number of years, is a matter of the first importance to the buyer, and well worthy the most careful consideration.

The Roses, on the growth of which my observations were made, were

supplied from the nursery of one of the largest growers in the south, the mention of whose name would be a sufficient guarantee that they were all that could be desired as far as health, robustness, and proper working could make them; and therefore we may fairly start with this premise, that whatever has gone wrong with them must either have been the fault of my method of cultivation, or have arisen from causes beyond my control.

My Rose-bed is situated in a very warm and sheltered position. When first planted the soil, which is a yellow loam, was trenched 2 feet deep, and liberally supplied with a dressing of rotten manure and scrapings from the roadside. The plants when received were remarkably strong and vigorous, but the shoots, being of very rapid growth, were necessarily pithy, and therefore not so well able to withstand the severe pruning that newly planted Roses must undergo. One that was particularly pithy, Evêque de Nimes, died without starting a bud; but the remainder, having been mulched with half-rotten dung and liberally watered, managed to grow on, and bloomed in the summer pretty well. Unfortunately, however, with continued drought came a lack of water, and as a matter of necessity they had to be left to shift for themselves as best they could, and as a consequence I got scarcely any autumn bloom. During the ensuing winter, I forked in a good dressing of manure, and, after pruning, a top-dressing of soil from an old Cucumber-bed. The early part of the last summer, not having been so dry as the preceding one, I had a very fair amount of bloom; but the hot month of September once more exhausted our waterworks, and carried death and desolation into the midst of my Rose-bed; several were quite dead, others too far gone ever to make good plants again; and not one of those worked on the Manetti was anything to boast of.

Now, after this paragraph of failures has been read, I shall be asked, I imagine, "Did you bury the stock in the soil?" To this I reply, Yes. "How did you prune?" Hard the first year, and sparingly afterwards; as they never produced growth at all equal to what they did at the nursery. "Did you mulch the roots?" Yes. "Then how about moisture?" Well, really, this is my weak point, for situated as my garden is upon the saddle of a ridge, with a fall on either side, having from 2 to 3 feet of soil on the surface, with 12 feet of gravel under that, and where the water in the wells falls from 6 feet in winter to 36 at midsummer, some of them becoming quite dry by August—it must be confessed that I am not cultivating the Rose under the most favourable circumstances, especially when worked on the Manetti.

Now, I have not written this much simply for the purpose of depreciating the character of the Manetti as a stock. I have no doubt that in some situations it is all that can be desired; but this can only be where the soil is well adapted to it. All Roses do not do badly with me; because I have growing on their own roots a large number that have done remarkably well, and promise, at the present time, an abundance of bloom next summer. Among the Roses which I had from the nursery were a few on their own roots—viz., John Hopper, Beauty of Waltham, and others; these were planted in the same bed with others on the Manetti, and they have thriven in a way that affords a marked contrast to the latter. But the most direct confirmation of my belief that Roses on their own roots succeed better than those on the Manetti in dry soils, is to be found in a row of the former which I planted in the hottest situation in my garden, from whence I had previously grubbed out an old Laurel hedge; they were a mixed collection of Bourbons and Hybrid Perpetuals of my own striking, and the strong and redundant growth which they made in the course of the first season after planting, under even a less generous treatment than those on the Manetti received, has astonished as much as delighted me. I had some very fine blooms from these, especially in the

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autumn; and now, thinking that it would be an act of vandalism to cut away all this luxuriant growth, which under the ordinary mode of pruning I should have done, I have, instead, adopted the plan so strongly recommended by Mr. Perry some time since in the FLORIST AND POMOLOGIST, of pegging down, having first taken out the smallest shoots, and taken a few inches off the tops of the stronger ones as the case might require. Judging by present appearances, I may anticipate a large display of bloom during the ensuing season, superinduced by this method of treatment.

Roses are by no means difficult to strike, especially where a little ordinary care and forethought are used. Almost every Rose-grower has his own particular plan; mine is as follows: Early in November, when the plant has shed its leaves, and the wood is well ripened, I take off for cuttings what wood can be spared without absolutely pruning the tree; it is cut into lengths of about 6 inches, carefully named, and the cuttings are inserted almost as thickly as possible in an old frame in which a compost of road grit and mould has been placed. Bury the cuttings about half their length in the compost, take care to keep them as close to the glass as possible, and throw a mat over this in severe weather, but when fine and mild give them all the air possible; this will help to mature the wood, and assist in callusing. By the beginning of March it will be found that the majority of the cuttings will have done so. At this time take advantage of open weather, and transfer the whole to some well-prepared ground in a sunny situation. Stretching a line, make a cut with the spade by its side, half fill up the shallow trench thus formed with sand or road grit, place the cuttings about 6 inches apart in the drills, 12 inches from row to row, tread them firmly in, make all neat, and then leave them to their fate. I feel satisfied, from my own experience, that those who may adopt this method of propagating Roses on their own roots will not be disappointed.

Maybush. A. D.

CULTURE OF MELONS IN POTS.

WHAT I propose is to set up the growth of Melons in pots in opposition to beds of soil. By this method we know they can be brought to the highest state of perfection without any difficulty in low narrow houses, and I cannot see any valid reason why the same result may not be obtained in brick pits, whether bottom heat is supplied by hot water or fermenting dung. Let us adopt the latter means of heating, which is the more common of the two. The dung bed should be made in the usual way, and when the heat has subsided to about 85°, the pots may be safely plunged up to the rim, they being filled with rather adhesive soil, mixed with a fifth part of rotten manure, kept high enough to produce a slight elevation above the general surface, so as to prevent the accumulation of moisture at the neck of the plant. Pot-culture restrains excessive growth, and does away with the necessity of constant stopping and thinning, and were these the only advantages something would be gained; but there is another to which I would wish to direct special attention, and that is a reduction in the consumption of soil. Some gardeners are so favoured that it may be had *ad libitum;* but with the majority, when a supply is required, it is begrudged, and should the application not meet with entire rejection, the gardener is referred to some uncongenial corner where he is obliged to skin off the most suitable patches here and there. Should crops fail, and plants die, or become sickly, the subject of nourishment is never thought of, or disregarded, and the whole blame is thrust upon the operator's unsuccessful management.

What is used is that known among gardeners as an 18-inch pot, and as

six will be required for a pit 20 feet long, we find that they contain nearly 12 cubic feet of soil. A pit of that length, and 6 feet wide, filled 18 inches deep with soil, which is about the average quantity employed when Melons are planted out, amounts to 180 cubic feet, hence there is a surplus of 168 feet. As the surface of the bed, however, requires to be covered 2 inches deep with soil for the shoots to run upon, then 20 feet subtracted from 168 leave a residue of 148 cubic feet. Let us repeat six successional crops during the season, and we find that no less than 888 feet of soil are saved.

The economy of soil is one advantage, and a great one too; but the pot system does more—it very materially lessens labour, and prevents exposure, as is the case when the roots are moulded up. What I have stated I have practised, and I can therefore assert the advantages with confidence.

Tortworth. A. CRAMB.

ROYAL HORTICULTURAL SOCIETY.

A SERIES of small exhibitions to be held on Saturdays in the conservatory of the Society at South Kensington are fast growing into interesting meetings. Small prizes are offered, which are yet a sufficient inducement to exhibit; and as the season advances, and flowering plants get abundant, some very pretty displays may fairly be anticipated.

FEBRUARY 10TH.—A miscellaneous group of flowering plants from Messrs. W. Cutbush & Son, of Highgate, made the centre of the conservatory very gay and attractive. Among them were nicely flowered plants of Rhododendron Cunninghami; dwarf compact bushes of Prunus sinensis flore pleno, an admirable plant for forcing, the branches being thickly studded with pure white flowers; Azaleas Taylor's Red and Nosegay; Polygonatum vulgare, Dielytra spectabilis, &c. Of bulbs there were Hyacinths in large pots, containing six plants each, which were very striking: the sorts were, Grand Vainqueur, Grandeur à Merveille, and Voltaire, single whites, but different shades of colour; La Tour d'Auvergne, double white; Orondates, single pale blue; and Amy, single bright red. These are apparently early-flowering kinds. The following kinds of Tulips were also shown, twelve in a pot, and were remarkably gay: Tournesol, double, and Vermilion Brilliant. Of Crocuses, there were Albion, dark purple-striped, very fine and showy; Giant Yellow, pale in colour; and Elfrida, a white variety, but having faint purple lines on the insides of the flowers. Mr. W. Young, of Highgate, had some ornamental and flowering plants, including Hyacinths, Yucca aloifolia marginata, Dracæna Cooperi, Epidendrum cochleatum, &c. Mr. W. Bartlett, of Hammersmith, an amateur, showed some Hyacinths and Narcissi; some of the former had good spikes, but the foliage was too much drawn.

A very interesting collection of Primula sinensis in variety came from Messrs. F. & A. Smith, of Dulwich, consisting of both double and single flowers. Of the latter there were P. sinensis fimbriata carminata, with large, stout, well-fringed flowers, suffused and flaked, and faintly spotted with carmine; alba superba, very large fimbriated flowers, pure white when young, but slightly tinged with pink when older; purpurea occulata, the centre brownish orange, the flower deep purple, with white spots—as shown it was but indifferent; also P. filicifolia rubra, with very fine rosy red flowers. Of double flowers there were plena incarnata, centre bright rosy pink, paling off to pure white, fimbriated edges—large and double; Queen of England, centre suffused with pink, the smaller and weaker flowers being pure white—very double; Fairy, not so double as the preceding, but in a kind of transition state, as the orange centre of the single flowers was quite conspicuous—centre pink,

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with faint flakes of the same colour, fimbriated edges; and kermesina splendida, rosy carmine cerise, the flowers being semi-double only.

FEBRUARY 17TH.—On this occasion, also, Messrs. W. Cutbush & Son made a very effective display with spring-flowering plants. A collection of Crocuses included Albion, striped; Giant, yellow; Elfrida, white; Versicolor, striped; and Prince Albert, a very fine purple. A collection of twelve Hyacinths was made up of the following kinds: Queen of the Netherlands, Mirandoline, Mont Blanc, and Grandeur à Merveille, single white; Lord Wellington, double red; Garrick and Laurens Coster, double blue; and Duchess of Richmond, single red. A collection of forced bulbs included Vermilion Brilliant and Scarlet Van Thol Tulips, the former double the size of the latter, besides being of a very different formation; also, Yellow Prince, White Pottebakker, and Tournesol, double; Polyanthus Narcissi, Belle Princesse, and States General, yellow, with orange cups; and Gloriosa, white, with orange cup; some Hyacinths, &c. Also a miscellaneous collection of flowering plants, comprising Magnolia Soulangeana, Franciscea eximia, double-flowering Plum, Rhododendrons, Azaleas Louise Margottin and Queen Victoria, &c.

Mr. Bartlett also had Hyacinths and Narcissi, unnamed, and the following Tulips: White Pottebakker and Vermilion Brilliant, single; Rex Rubrorum and Yellow Tournesol, double. A collection of Gourds was shown by Mr. W. Young, of Highgate; also a group of six Dracænas. Mrs. B. Hooke, of Fulham, sent four varieties of Cyclamen persicum; and from Mr. E. Robinson, gardener to Richard Benyon, Esq., of Reading, came the most interesting feature in the show—eleven plants of the Otaheite Orange, 18 inches to 2 feet in height, and from 12 to 18 inches in width, nice bushy plants, with very healthy foliage, and the fruit finely coloured. There were 111 fruit on the plants, one of them having fifteen on it. They were excellent specimens of Orange tree cultivation.

Mr. W. Earley, of Digswell, had a collection of vegetables, containing Paul's Crimson Beet, a very deep-coloured kind; Musselburgh Leeks, Green Top Stone Turnip, excellent Student Parsnips, ditto White Spanish Onions, early White Penzance Broccoli, Elford Rhubarb, an old but high-coloured sort; James's Carrots, Jerusalem Artichokes, Digswell Prize Hardy Endive, a good stock of Green Curled, Prickly Spinach, Scorzonera, Salsafy, &c. Also six dishes of Apples of the following kinds: Golden Reinette, Dredge's Fame, an excellent keeper; fine Cockle and Sturmer Pippin, Fearn's Pippin, and Hertfordshire Codlin. These had been kept in very dry silver sand. A small collection of vegetables also came from Mr. Beasley, gardener to Mr. Wood, Acton, in which was some very good Sea-kale.

The conservatory is now very gay and inviting with spring-flowering plants, among which Hyacinths, Tulips, and Narcissi play an important part. They have been arranged with great judgment and taste by Mr. Eyles.

R. D.

WELLINGTONIA GIGANTEA.

A FEW years ago much fault was found with this noble and very ornamental tree, on account of its being apt, while in a young state, to lose some of its branches by fungus, &c., and to have its young wood turn brown. Of late, few such complaints have been heard, but, on the other hand, statements as to its rapid progress in height and symmetry, its producing cones, &c., have been frequent. Have any of your readers seen perfect seed produced from cones saved in England, or indeed in any part of the United Kingdom? We have trees here which have produced cones for several years, but in size not equal to that

which the late Mr. Veitch, of Exeter, gave me, and it was one that his collector sent home previous to our seeing or knowing what like the plant was. This season, however, we have cones of the natural size, and containing perfect seeds. Why is this? Because we have had, and shall have again, male catkins on those trees, and such catkins were not observed in previous years. It will certainly be interesting to know what others have observed in these matters.

Bicton. JAMES BARNES.

NOTES MADE AT THE FLORAL AND FRUIT COMMITTEES.

AT the meeting of February 20th, an extremely interesting show of Apples was an object of considerable interest. Though the season has been generally admitted to be one adverse to the keeping of Apples, it would not have been supposed to be true by any one who could have seen the splendid fruit shown. The fruits were large, plump, and fresh-looking, and seem as if they had been well and carefully preserved.

A first-class certificate was awarded to Messrs. Rivers & Son, of Sawbridgeworth, for a collection of American Apples, grown and ripened out of doors on Paradise stocks, and shown to evidence how very favourable to their proper development was the season just past. The varieties were large and nicely coloured. They were Boston Russet, Allen's Everlasting, Æsopus Spitzemberg, Baldwin, Calville St. Sauveur, Rhode Island Greening, Lady's Sweeting, Lodgemore Nonpareil, Newtown Pippin, Melon Apple, Rome Beauty, Calville Blanche, and Sturmer Pippin. The same award was made to Mr. S. Ford, gardener to W. E. Hubbard, Esq., Horsham, for a collection of Apples, Pears, Oranges, and Limes. Of the former there were excellent examples of Scarlet Nonpareil, Court-Pendu-Plat, very highly coloured; Adams' Pearmain, Blenheim Orange, remarkably good; Dutch Mignonne, Royal Pearmain, Elstead Pippin, Black Jack, Shepherd's Seedling, King of Pippins, Scarlet Pearmain, Norfolk Beefing, Holland Pippin; of Pears, Knight's Monarch, Easter Beurré, Uvedale's St. Germain, March Bergamot, Joséphine de Malines, and Bequêne Musqué. Also sweet Oranges, which were said to be used at table; and some fruit of the prolific Lime. The same award was also given to Mr. Lynn, gardener to Lord Boston, Hedsor, for a collection of Apples, comprising Scarlet Nonpareil, excellent Cockle Pippin, Wellington, French Crab, so yellow in colour, and large in size, as to create some discussion as to whether it had been correctly named; Scarlet Russet, Cox's Orange Pippin, Small's Nonpareil, fine Court-Pendu-Plat, Lemon Pippin, Herefordshire Pearmain, Sturmer Pippin, Bess Pool, Golden Russet, Lewis's Incomparable, and a very fine yellow sort, name unknown. Mr. Lynn also sent some Black Hamburgh Grapes, which had been hanging since September, to show its valuable keeping properties; and a trio of Hedsor Prolific Winter Cucumber, a medium-sized fruit of the Sion House strain, very prolific, and invaluable for house work.

From Mr. W. Hill, the Gardens, Keele Hall, Staffordshire, came very fine fruit of Citrons, to which a first-class certificate was awarded; and from the same exhibitor came a bunch of Lady Downe's Grape, also a bunch of Golden Lady Downe's, a medium-sized berry; no report was made as to its qualities.

To the department of the Floral Committee came from Mr. F. J. Graham, of Cranford, several large plants of the new Russian Violet Czar. The flowers are very large, of a purplish violet colour, and beautifully fragrant. A smaller variety, named Dagmar, was also produced, but was considered to be a good deal inferior to the foregoing.

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Mr. W. Bull had three varieties of Camellias—Contessa Morella, white, slightly flaked with carmine; Venanzio, pale pinkish blush, suffused and flaked with rose; and Archiduc Carlo di Toscano, bright crimson, with pale rose centre, suffused with crimson, and flaked with white. From Messrs. Waterer and Godfrey came three plants of Aucuba japonica vera, one of them a very handsome variety, having very large clusters of bright red berries. From the gardens of the Society came various ornamental and flowering plants, among them was a Cattleya, sent home by Mr. Weir, and Libonia floribunda, a very handsome and free-flowering greenhouse shrub, which was awarded a first-class certificate.

At the usual scientific meeting afterwards (presided over by Lord Henry Lennox, M.P.), the Rev. J. Dix made some comments on a few of the subjects present; as also did Mr. G. F. Wilson in regard to some of the fruit. The Rev. M. J. Berkeley produced a small branch of Wellingtonia gigantea, with male catkins, which had been obtained at Orton Longville, near Peterborough, and said to be the only specimens that had ever been produced in this country. Mr. W. Wilson Saunders also gave a very interesting address on the cultivation, &c., of some Orchids he had brought with him.

R. D.

THE CULTIVATION OF THE MUSHROOM.

The excellent article on the cultivation of the Mushroom by Mr. Saul (see page 22), is so much to the purpose, that I have some hesitation in sending a few observations on the growth of Mushrooms in a house built here. This Mushroom-house is heated with hot-water pipes, and the beds have slate sides and bottoms, with iron pillars to support them, thus doing away with all timber fittings, which constantly decay and favour the breeding of woodlice and other insects.

Mr. Saul's mode of preparing the horse-droppings is the best that can be adopted, for I find when droppings are thoroughly turned over daily in an open shed till dry, that beds can then be made with safety. His system of mixing loam with the droppings for large beds in sheds is likewise an excellent way of keeping such beds in a good bearing state, from the solidity and moisture so given them. When filling the beds here, after the droppings have been well turned over, and are dry enough, the beds are well trodden, or beaten very hard, and sometimes spawned on the same day. If any doubts are entertained as to the droppings not being fermented enough, or too wet, the holes are made and kept open, but the spawn is not inserted for a few days, till the heat is ascertained to be all right. The temperature of the house being kept at about an average of 60°, Mushrooms invariably appear in these beds in three or four weeks if the spawn be fresh and good. To make sure, I generally mix together the spawn from two or three different makers, when spawning the beds. The number of beds in the house here is twelve, and they are of large size, and the ease and certainty with which a large establishment can be daily supplied with Mushrooms is a proof that such houses are invaluable.

Another great advantage in having such a house is, that Sea-kale, Rhubarb, Endive, and Chicory can be easily forced in any quantities. I keep a lot of deep boxes with lids for the Sea-kale and Chicory, the roots being boxed in November, and covered with litter, so as to be always ready for bringing in during the most severe weather. The Endive is brought in from the protected borders as wanted, and planted in an open bed, where it blanches in a few days. I call this house the Russian-house, for it does duty for thawing frozen vegetables in hard winters, as well as furnishing all the above necessaries.

In my opinion there is not a more useful structure in a garden than a good Mushroom-house, where a large establishment has to be supplied in the winter months, and where gardeners want to live on good terms with the cook. In general, back sheds, or stokeholes have to be used for such purposes, but the supplies can never be regulated so well as in houses built for the purpose, and properly heated.

Welbeck. WILLIAM TILLERY.

ON THE CULTURE OF THE NEAPOLITAN VIOLET.

As winter flowers are so much sought after and esteemed, I venture to offer a few hints on the cultivation of the Neapolitan Violet, than which none is a greater favourite with the ladies; and with the exception, perhaps, of the Rose, none imparts a more delightful fragrance to the atmosphere of a room. It may be had in bloom from the first week in October to the last week in March, a period of six months; and if Roses be supplied during the other six, few other flowers will be required for cutting for the drawing-room or boudoir; indeed it is upon these two that I mainly rely to meet the demands for that purpose.

Writers in former Numbers of this periodical, have stated that the Neapolitan Violet may be grown in such places as turf pits, as recommended by Mr. Barnes, of Bicton; but it should be borne in mind that here, as well as at other places forty miles east of London, we are not favoured with a Devonshire climate. Even in the neighbourhood of Newbury, in Berkshire, where I lived eighteen years ago, I found it requisite to grow this plant in a brick pit heated by hot dung. In Violet-growing, as in everything else in gardening, unless the heart is in the work, failure will be the result, and instead of an abundance of flowers there will only be leaves.

My own mode of cultivation is as follows: About the first week in April I take the plants out of the pit, a common Melon pit, and cut the roots to pieces, avoiding any that are old and hard, as I prefer the young pieces that are rooted, for these make the best plants. I bed them out on a north border, in rows 15 inches apart, and the same distance from plant to plant in the row; this gives room for working the hoe between them, as well as for cutting off the runners as fast as they are produced, with the view of keeping the plants to one crown. It is necessary to use the hoe among them several times in the course of the summer, to keep the soil sweet and free from weeds; and should the weather become very dry, water must be given, either with a rose watering-pot, or from the syringe—I prefer the latter—about twice a-week during the hot weather, as the Violet delights in moisture. Abundance of bloom in December and January are the reward of careful summer treatment, especially in respect to watering.

For soil I prefer plenty of leaf mould, with the addition of a good proportion of road sand. I use about one barrowful of the latter to three of the former for growing them, both in the border and in the pit.

I will suppose that the summer's growth is completed, and that the plants are both large and full of flower-buds. About the first week in October, a pit is prepared as follows: Planks are laid crossways inside the pit, resting on the tops of the pigeon-holes, and on them is placed a single layer of faggots for drainage, and then just sufficient long dung to prevent the soil falling through. A depth of about 6 inches of soil will be found sufficient. The plants are then taken up, preserving a good ball to each, carried on a handbarrow to the pit, and planted in rows, in about 8 inches of soil, and with their tops about

8 inches from the glass. The distance apart must be regulated by the size of the plants; I generally allow about 1 foot between them each way.

After planting in the pit, should the soil become too wet from over-watering, it should be occasionally stirred with a small hoe, and any damp leaves picked off, as well as all the runners. I am aware that some gardeners do not take this trouble, but neither do they have much trouble in gathering the blooms. They get leaves in winter, and blooms in spring, when there are plenty in the hedgerows.

If the above directions be attended to, and fresh linings of hot dung placed round the pit or frame, so as to maintain a nice bottom heat, the glass covered with mats when necessary, and air given on all favourable occasions, plenty of beautiful double blooms will be ready to pick at any time during the winter months.

Elsenham Hall Gardens. WILLIAM PLESTER.

A FEW REMARKS ON INSECTS.

THERE is nothing so destructive to a fruit garden as insects; nor is there anything in the business of gardening that requires more attention than obtaining an acquaintance with their character and habits, that we may be able to combat such enemies successfully. The subject is one of great importance, but gardeners will easily acquire from observation and books such a knowledge as will suffice for their profession.

In seasons favourable to them, the power which some insects, such as green fly, have of multiplying themselves, is almost incredible.

The Apple trees about London, and in some of the southern counties, suffered very much from insects last season. In Yorkshire, and other northern counties, the Apple trees escaped from caterpillars uninjured, and promise an abundant crop in the coming season; but during the early part of last summer thrips abounded, every flower, plant, shrub, and tree, being covered with them. On hot burning soils the red spider was also very numerous, attacking Strawberry plants in the open ground, and the Raspberry, Gooseberry, Peach, Apple &c. During the early part of September, aphides were unusually numerous for several days; they settled in masses on the Peach trees, which soon shed all their leaves. Fortunately, owing to the fine weather that had prevailed previously, the wood was pretty well matured, otherwise, the prospect of a crop this season would have been very doubtful.

I would strongly impress on fruit-growers the importance of watching carefully this season, and making an early attack upon every species of insect. As a precautionary measure, all the old shreds and ties should be removed from Peach trees, and the wood should all be well washed with a mixture of sulphur, soft soap, soot, and clay, mixed to the consistency of paint. If all the wall trees were painted it would be an advantage. Standard trees of all kinds will have been pretty well cleansed by the heavy rains we have had. Careful and unceasing attention in watching and destroying all insects on their first appearance is the best method of keeping them down. A few moments, in the early stage of insect life—at the first birth of the new colony—will do more to rid us for the season of that species than whole days of toil after the matter has been so long neglected that the enemy has become well established. Once left to multiply, the difficulty and labour of eradicating insects are considerably increased. The difference between destroying them at first and a fortnight afterwards, is frequently as between ten and ten thousand. A very little time and attention regularly devoted to the extermination of insects will

keep a large garden free from them. Constant attention and watchfulness in destroying insects on their first appearance, save a great deal of labour in the end.

The many insects that infest fruit trees may, for all practical purposes, be divided into four classes: 1st, Those which for a time harbour in the ground and may be attacked in the soil; 2nd, Winged and other species which may be attacked among the branches; 3rd, Aphides, or plant lice, which infest the young shoots; 4th, Moths, and all flying insects.

Insects, the larvæ or grubs of which harbour in the ground during a certain season, are all, more or less, affected by the application of common salt as a top-dressing. Salt is very disagreeable to nearly all this class of insects, but being a very powerful agent, it must be employed for this purpose with the greatest caution and judgment; if applied very frequently, or too plentifully, it will certainly cause the death of any tree.

It is astonishing what havoc caterpillars make of fruit trees if allowed to increase; in an incredibly short time a tree, or a whole orchard, as the case may be, is denuded of all its leaves, than which there is nothing so unsightly in a garden during the summer months, to say nothing of the loss of fruit. Watching well, and destroying them on their first appearance, is the best and wisest course that can be adopted; and, in default of other more rapid expedients, the old mode of hand-picking and crushing is the safest and surest that can be followed.

When caterpillars are very numerous, and hand-picking would occupy too much time, powdered white hellebore is a sure and quick means of destroying them. The mode of applying it is to dust it on them from a small dredger. One dose is, in general, sufficient; but as many of the caterpillars may be on the under side of the leaves at the time, and so may not get any, it is advisable to repeat the application after a few days; it is rarely that a third application is required. When caterpillars are very numerous on fruit trees, this is the surest and most speedy mode of destroying them.

Of the winged and other species which may be attacked among the branches, many small insects may be destroyed either by powerful odours, or by a strong decoction of tobacco. The great point is to do it in time; one or two syringings with tobacco water, and one or two fumigations with tobacco, will soon destroy a young colony; but if not taken in time, and allowed to increase, the difficulty of exterminating them effectually is very much greater.

Aphides, or plant lice, which infest the young shoots, are readily destroyed by fumigating with tobacco, and for clearing plants under glass it is the best and surest mode; but when fruit trees on walls and in the open ground are infested, the best mode to adopt is to syringe with tobacco water, which is an efficient remedy for aphides and many other insects that feed upon the young shoots and leaves of plants. The young shoots of Plum trees, Cherries, Peaches, Gooseberries, Currants, &c., are often infested with aphides in summer; the best plan for destroying these, is to dip the end of the shoots into tobacco water; it is rather a tedious plan, but for the black fly which attacks Cherry and Peach trees it is the best remedy. When the trees are syringed, the water does not reach all the insects so effectually as when the shoots are dipped into the water.

Moths, and all night-flying insects, are destroyed in large numbers by the following mode:—A flat saucer or vessel is set on the ground, and in it is placed a light, partially covered with a common bell-glass besmeared with oil. All the small moths are directly attracted by the light, fly towards it, and, in their attempts to get at the light, are either caught on the sides of the bell-glass, or fall into the basin of oil beneath, and in either case soon perish. If a

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person walks about dusk on a fine summer's evening by the side of a wall of Apricot or Pear trees, he will see a number of little moths flying about; every one of them should then be destroyed, and there is no simpler means than the plan just described above.

It is impossible in one short article to mention the manner of destroying all the insects injurious to fruit trees; it is an inexhaustible subject, and one deserving the greatest attention from gardeners.

There can be no good gardening, nor any good fruit, where insects are allowed to get ahead, and to keep them down demands constant watchfulness, and promptitude in destroying them on their first appearance.

Stourton. M. SAUL.

OUR CONTEMPORARIES.

THE parts of FLORE DES SERRES from November to February, contain the following plates:—

Eucodonopsis nægelioides, a hybrid between Eucodonia Ehrenbergi and Nægelia zebrina splendens. The flowers resemble those of a Gloxinia, and are of a rosy purple colour, veined with crimson; the throat lemon-coloured, dotted with crimson. The foliage is the same as that of the mother plant, the Eucodonia, as regards form and nervation, but is not lax.

Aucuba japonica.—The green-leaved plant, bearing its fine, shining, coral red berries.

Amaryllises.—Four plates of several unnamed seedlings raised in M. Van Houtte's establishment. The flowers are bright-coloured, and very showy, but not materially different from those of existing varieties.

Azalea indica punctulata, white, with flakes and broken streaks of rose and red. *Azalea punctulata variegata*, rose and red, with crimson spots, and edged with white. *Azalea punctulata omnicolor*, uniting on the same individual the flowers of the preceding two, with others entirely red with a brilliant crimson tinge in the upper petals. The first-named variety was raised by M. Van Driessche, of Ledeberg, and the second and third are sports from it, which are now said to be fixed, having come true for two years.

Odontoglossum Pescatorei.—An excellent plate of this beautiful Orchid, which first flowered in 1851, in the establishment of M. Linden, of Brussels, to which it was sent by Funck and Schlim, who found it in Oak forests in New Granada, at an elevation of 7500 to 8500 feet above the level of the sea.

Rose Madame Joséphine Guyet (Touvais).—A Bourbon of last year, with medium-sized, globular, bright red flowers, very brilliant in the centre. M. Van Houtte remarks that it has more than justified the description given by the raiser.

Clianthus Dampieri flore albo, rubro-marginata.—Another plate of Messrs. Henderson's new variety. *Lilium Thunbergianum aureum, nigro-maculatum.* A variety described as having flowers of a bright nankeen yellow, spotted with black. It grows about a foot high. The bulbs should be planted out of doors in autumn, lifted every two or three years, the young bulbs removed, and, when this has been done, immediately replanted.

Clematis Jackmanni and rubro-violacea, both of which were figured and described in our Volume for 1864.

Pardanthus chinensis.—A good representation of the Ixia sinensis of Linnæus, known also as Moræa sinensis.

Dendrobium formosum giganteum.—A magnificent variety of D. formosum with white flowers, having a blotch of deep orange at the base of the lip, and with flowers much larger than the common form of D. formosum.

Camellia planipetala, *Tea Rose Maréchal Niel*, and *Phalænopsis Lüddemanniana* form the subjects of three more illustrations. Of Messrs. Low's beautiful new Phalænopsis a full description, accompanied with an excellent coloured plate, appeared in our December Number.

Schizostylis coccinea.—A half-hardy member of the Iris family from Caffraria, and producing in the end of summer and in autumn long spikes of crimson flowers, which are uninjured by 3° or 4° of frost.

Gesnera (Nægelia) *Sceptre Cerise*. — Branching racemes of vermilion-coloured flowers, variously marked with yellow, and bronzy chestnut-coloured leaves, shaded with crimson. A group of beautiful *Peruvian Alströmerias*, imported, and probably also crossed, by M. Année, completes the list of illustrations in these parts.

The Floral Magazine for January has for its first plate *Swainsonia magnifica*, a New Holland plant, with racemes of pretty bright pink, pea-like flowers. It is in the hands of Mr. Williams, of Holloway, who recommends it for planting against the pillars or trellis of a cool greenhouse, or for cultivation as a specimen plant. When the seeds are sown after having been kept any considerable time, they should previously be soaked slightly in warm water. For raising the seedlings, the heat of a stove or slight hotbed is requisite; and in potting off, the most suitable soil to use is equal parts of loam and fibrous peat, with a good proportion of silver sand.

The second plate has for its subject Messrs. E. G. Henderson's new variety of *Clianthus Dampieri*; and the third is a representation of three of Mr. Bull's *Italian Striped Verbenas*, of which the editor justly remarks, "that it is not likely that such flowers will be serviceable as bedding plants; for, as a rule, two-coloured flowers, even those where only the eye is of a different colour, do not succeed so well as those which are self-coloured, or nearly so;" but for exhibition, and in contrast with the self-coloured varieties, they will be found, he imagines, very useful. The varieties figured are *Beautiful*, white, blotched, flaked, and striped with purple; *Carnation*, white, flaked with deep crimson, and striped with rose; and *Fascination*, white, striped and blotched with dark crimson, and striped with violet-rose and carmine.

The fourth plate is a representation of *Primula cortusoides amœna alba*, one of the pretty varieties sent home from Japan by Mr. J. G. Veitch. The flowers are white, but, being somewhat pendulous, also display the magenta-coloured back of the petals.

In the February Number the first plate is a representation of the common *Aucuba* in fruit; the second, *Verbena Really Blue*, which it is believed will supply the long-felt want of a truly blue Verbena for bedding-purposes.

Chrysanthemums Iona and *John Salter* are the subjects of the third plate. The former is a beautiful golden-coloured flower; the latter a large finely-incurved orange flower, the "petals" backed with Indian red. *Calanthe Veitchii*, obtained by Mr. Dominy, from Limatodes rosea fertilised with Calanthe vestita, and now tolerably well known, is the subject of the fourth plate.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society. — The annual general meeting was held on the 13th of February, when his Grace the Duke of Buccleuch, the President, took the chair at 3 P.M. The usual formalities having been gone through, Mr. Robert Fortune and Mr. W. B. Booth were appointed scrutineers of the ballot for the election of new members of Council and officers for the ensuing year. Whilst the ballot was being proceeded with, W. Wilson Saunders, Esq., the Secretary, read the report of the Council for the year 1865.

The following were the principal points

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touched upon in the report:—The number of Fellows of the Society has increased during the past year, and the amount of their subscriptions in a still greater ratio, owing to their desire to avail themselves of the additional privileges attached to the four-guinea membership. Regret is then expressed at the loss which the Society has experienced by the decease of three men of such eminent horticultural attainments as Dr. Lindley, Sir William Hooker, and Sir Joseph Paxton; and the Council propose to secure the co-operation of Government, and of bodies pursuing branches of science collateral with horticulture, in obtaining a life-sized group. Satisfaction is expressed at the improvement in the receipts from exhibitions; and the result, it is believed, tends to show that small and frequent exhibitions are more conducive to horticultural progress, and less likely to cause pecuniary loss, than the large exhibitions of past years. The Council, therefore, consider that there should be only one great general exhibition, and that that should be held in the end of May or beginning of June. The number of entrances to the gardens at Kensington have shown a considerable increase during the last year, being 231,599, as against 185,092 in 1864, and 115,521 in 1863. These numbers are exclusive of the admissions on the anniversary of the Prince Consort's birthday, when, last year, more than 129,000 persons entered the gardens. The Council, in reference to the Fruit and Floral Committees, report that the meetings of these bodies have been numerous and well attended, that the subjects adjudicated on have been many and important, and that trials of bedding plants and Peas have been carried out by them. The Tuesday meetings are next referred to, and it is stated that they do not compare unworthily with the old Regent Street meetings, either in the beauty of the objects exhibited or the numbers present, and steps are to be taken to make them better known to the Fellows. The Saturday shows and promenades have proved very attractive, and the attendance at the gardens on those days has been greatly increased in consequence; the average number of visitors on the Saturdays during the month of May, 1865, being 2000, whilst in the preceding year, before the institution of the show and promenade, it was less than 400. The next point is that the produce of Chiswick has not yielded so great a return as was expected, owing to the failure of the Strawberry crop, and the general abundance of other fruits, and consequent low prices. The number of visitors to the Chiswick garden during the past year was 4675, of whom 1003 were Fellows. 1530 packets of fruit-tree cuttings and 376,884 packets of flower and vegetable seeds have been distributed among the Fellows, and 6265 plants by ballot. The progress made in the completion and decoration of the structures in the garden at South Kensington is then adverted to; then the arrangements for the coming season, in which the Council have endeavoured to carry out the idea of uniting science and art. The Rev. M. J. Berkeley has been appointed botanical adviser to the Society, and with him have been united two practical horticulturists —Dr. Hogg and Mr. Moore, the one eminent in pomology, the other in floriculture, with the view of carrying to practical conclusions the ideas evolved by the experiments at Chiswick, through the labours of the Fruit and Floral Committees, and by the shows. The three gentlemen above-named are to supervise the operations, to conduct the experiments, and to watch on and report for the Society the Committee meetings and shows. Dr. Hogg and Mr. Moore are likewise to examine candidates for certificates and diplomas in theoretical and practical gardening, and to advise on the instruction of young gardeners at Chiswick. By these arrangements the Council hope to effect two important objects—first, to spread a knowledge of what is being done both by the Society and by horticulturists generally, so that a system may be worked out by which the field of labour may be partitioned among horticulturists, and experiments be suggested to them; secondly, to procure the instruction, either at Chiswick or by inducements held out to successful competitors at the examinations, of as many as possible of the rising generation of gardeners in those processes and methods which are likely to lead to successful results. In some such manner only can a sufficient number of facts be brought together for arriving at safe generalisations on the effects of particular modes of treatment on vegetable life. The remainder of the report has reference to arrangements for admission; to those with the Committee of Management of the International Exhibition and Botanical Congress; to the erection of a spacious hall, capable of holding 6000 persons, which it is in contemplation to erect on the vacant space between the conservatory and the Great Western Road; to Mr. Weir; and, lastly, to the special prizes offered by members, which are to be competed for on the 14th of June, and not on the occasion of the International, as erroneously stated in our last issue. A prize of ten guineas is also announced for the best essay on the growth of tropical fruits, a subject which is now engaging much attention.

After the report had been read the Chairman announced the result of the ballot—viz., that the Duke of Buccleuch had been elected President; G. F. Wilson, Esq., F.R.S., Treasurer; and Lieut.-Col. Scott, R.E., Secretary, for the ensuing year; that Viscount Sandon, the Right Hon. W. Cowper, M.P., and Sigismund Rucker, Esq., had been elected new members of Council, in the room of J. J. Blandy, Esq., J. Kelk, Esq., M.P., and Major Trevor Clarke, the retiring members in con-

formity with the charter; G. F. Wilson, Esq., Lieut.-Col. Scott, and Henry Cole, Esq., C.B., Expenses Committeemen; and J. Nicholson, Jonathan Clarke, and R. Hudson, Esqs., Auditors.

The adoption of the report was then moved by Sir A. Scott Waugh, who expressed his satisfaction with it, with the improvements effected in the gardens, and with the extension of the privileges of the members; and the regret which he, in common with other Fellows of the Society, felt at the loss of three such eminent men as Dr. Lindley, Sir William Hooker, and Sir Joseph Paxton. He observed with satisfaction that part of the report in which the Council expressed their intention of carrying out horticultural experiments.

Some questions were then put by Mr. Neville Grenville relative to the admission of Fellows during the International Exhibition, and it having been explained by Mr. Cole and the Chairman that the Fellows would have free admission to that exhibition on the second day, and at all times, except when the arrangement and judging of the plants and fruits was going on, to those portions of it in the Society's grounds, Mr. Grenville expressed himself satisfied. The motion for the adoption of the report being seconded by Mr. Blenkins, was then put to the meeting and carried unanimously.

The valuation of the Society's stock by Messrs. Lee and Parker, was next reported to be—Kensington, £3783 11*s.* 6*d.*; Chiswick, £2202 15*s.*—or altogether £5986 6*s.* 6*d.*

Some discussion afterwards took place as to the propriety of the threepenny admissions during those months when the Fellows are, for the most part, out of town. Colonel Challoner considered that such a rate of admission lowered the Society in the eyes of the public, and suggested that it would be better to throw the garden open free on certain days. Mr. Edgar Bowring said that as the estate, which the Society held on most advantageous terms, formed part of that purchased with the proceeds of the Exhibition of 1851, it was in one sense public property; and that therefore the general public should have some privilege in respect to it, either by facilities for admission at certain times, or by having free days. For himself he was rather inclined to think the latter course preferable. Several Fellows having expressed their opinions on this subject, and a motion that Monday should be a free day during August and September having been made and withdrawn, it was ultimately agreed that the best course would be to leave the matter to the Council to decide upon. Some questions having been put as to the privileges of the Fellows, and the Chairman having promised that if there was any obscurity as to these it should be made clear, the meeting closed with the customary vote of thanks.

One fact worth recording as indicative of the increasing prosperity of the Society is, that at the meeting held on the 20th, no less than thirty new members were elected; and now that the Council have shown their anxiety to do all in their power to extend the Society's sphere of usefulness, there can be little doubt that it will meet with a yet greater share of encouragement.

International Horticultural Exhibition and Botanical Congress.—Owing to Dr. Seemann's having to proceed on a mission to Central America, he has been under the necessity of resigning the Secretaryship of the Congress, and Dr. Masters has been appointed to that office.

Longevity of Trees.—The Washington Elm, at Cambridge, is supposed to be upwards of 140 years old, because it is known that the celebrated Whitfield preached under its shade in the year 1744. The Aspinwall Elm, at Brookline, is known from historical data to be two hundred years old. The great Elm on Boston Common is believed to be of about the same age. Now, of these trees, the first measures 14 feet in girth, at 4 feet from the ground; the second measures 17 feet, at 5 feet from the ground; and the third, 16½ feet, at the same height. There is a remarkable Lime tree at Neustadt, Wurtemberg, which was so noted in the 13th century as to be called "The Great Linden." An old poem, dated 1408, mentions that "before the gate of the city of Neustadt, rises a Linden, whose branches are sustained by sixty-seven columns." These columns were pillars of stone, set up to support the immense branches, one of which extended horizontally more than 100 feet. Its age is computed at about 820 years. The celebrated Tortworth Chestnut is probably the oldest and largest tree in England. In the reign of Stephen, which began 1135, it was remarkable for its size. It is now 55 feet in girth, at 5 feet from the ground, and is doubtless 1000 years old. One of the oldest Oaks in England is the Parliament Oak, in Clifstone Park, so called from a Parliament held under it by Edward I., in 1290. Who has not heard of the immense Oak near Cozes, in France, 90 feet in circumference at the ground, out of whose hollow centre a room 10 feet in diameter and 9 feet high has been cut out? It is put down at 1500 years from the acorn. The Olive tree attains a great age. One, lately cut down in the suburbs of Nice, Italy, showed nearly 1000 years.—(*American Horticulturist.*)

Remarkable Fig Trees.—In a recent Number of the "Journal of Horticulture" Mr. Dawson gives an acount of some remark- Fig trees at St. John's, near Ryde, Isle of Wight. The property, until lately, belonged to the Simeon family, and the gardener was Mr. John Lawrence, of whose decease and long and faithful service a notice appeared in our volume for 1865. Last autumn the ground was sold for building-purposes, and there is therefore every probability that the trees will

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be cut down. There are twenty-six or twenty-eight of them, half of which are growing on a trellis over a walk, the remainder are on walls. The largest two were originally trained against a wall, but had for many years been allowed to grow at freedom, and almost without pruning. The stem of the larger of the two, before dividing, measures 4½ feet in circumference; and its three branches 2 feet 2 inches, 1 foot 9 inches, and 2 feet round. The other tree has three stems, respectively 2 feet 6 inches, 3 feet, and 3 feet 4 inches in circumference. They always produced abundant crops.

Kew Gardens.—According to the annual report, the total number of visitors to these gardens during the past year has been 529,241; 260,040 on Sundays, and 269,201 on week days. Among alterations and improvements are the conversion of the old Victoria-house into a house to be devoted to the display of a selection of economic plants; and the whole of the collection of Palms in the Palm-house, as well as the succulents, have been repotted. The acquisition to the herbarium of Dr. Lindley's collection of Orchids consisting of 3000 specimens, and of Dr. Burchell's South African and South American herbarium is also announced.

Propagating Geraniums.—According to a French horticultural serial, M. Lierval practises the following mode of propagation: On a shelf immediately over the hot-water pipes, and which can be maintained at from 50° to 55°, is placed a bed of moss about 2 inches in thickness, and over this about a third of an inch of very light soil. About the beginning of February the store plants are started to furnish cuttings, and as soon as the buds have pushed a little they are taken off with a small piece of the shoot, and placed on the bed on the shelf, just putting them a little way into the soil to give them a hold. The soil is then kept constantly moist, and in five or six days roots are emitted. The cuttings are then potted in small pots, placed close to the glass on a hotbed, repotted as soon as they have filled their pots with roots, and replaced on the hotbed.

Obituary.

Dr. Peter Lenné, Director of the Royal Gardens, Potsdam, one of the best of the German landscape gardeners, died there on the 23rd of January, aged 76. The Royal gardens, and the public walks and gardens of Berlin, were indebted to his skill for much of their beauty.

Mr. Joshua Major.—We find in the "Journal of Horticulture" the following tribute to Mr. Joshua Major, the well-known landscape gardener, of Knowsthorpe, near Leeds. The deceased gentleman held a prominent position in his profession, and was the author of several valuable works. In 1829 he published a work entitled, "A Treatise on Insects Most Prevalent on Fruit Trees;" in 1852, "The Theory and Practice of Landscape Gardening," an important work, which met with high and deserved encomiums from the public press; and in 1861, with the assistance of his son, who succeeds him, "The Ladies' Assistant in the Formation of their Flower Gardens," a work designed expressly to meet the prevailing taste for the bedding-out or grouping style. He was also a frequent contributor to the "Gardener's Magazine," under the conductorship of that eminent man, Mr. J. C. Loudon, who highly appreciated his plans and papers on landscape gardening and other subjects. He delighted in works of philanthropy. He assisted in the formation of the first Sunday school in Leeds, of which he was superintendent for many years; and all religious and charitable institutions he took great interest in and actively promoted. His personal qualities were of a high order. He was of a cheerful disposition, simple in his tastes and habits, and impressed all who had the good fortune to know him as being a thoroughly kind-hearted and estimable man. He was highly appreciated by his workmen; and as an evidence of this, six of them served him fifty, forty-two, forty, thirty-two, twenty-nine, and twenty years respectively. After upwards of half a century devoted to his profession with an ardour and perseverance rarely equalled, he died on the 26th of January, at the advanced age of 79 years.

Mr. Robert Osborn.—It is with much regret that we have to record the decease of this gentleman, so long the senior partner of the well-known firm of Osborn & Sons, of the Fulham Nurseries, which took place on Friday, the 23rd of February. He was in his 84th year, and was highly respected by all with whom he came in contact during his long career.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Stove.—Allow the heat to increase gradually; admit air freely in favourable weather. Plants which have bloomed should be allowed to become dry, and be removed to a cooler house. Plants which begin to show signs of growth should be repotted if necessary. Attend to previous directions respecting insects.

Orchids.—As the principal part of these will now be growing, and as light and solar heat are daily increasing, the temperature may safely be raised a few degrees on bright days.

To many kinds shading will soon be necessary, and such should be got in readiness for using directly the plants show indications of suffering from excess of light. Attend to previous directions respecting potting or re-dressing, which should always precede the new growth. Many kinds, however, will from time to time require examining and the addition of fresh material. Do not permit water to lodge about the newly-formed roots, or rot they assuredly will. Increase the humidity of the house as the days lengthen. Remove plants in bloom to a drier house, to preserve them from spotting. Night temperature 60°, rising 10° or 15° by day.

GREENHOUSE.

If a mixed collection of plants is grown, remove the softwooded kinds to one end of the house, as they will require to be kept a little warmer than hardwooded sorts. Where separate houses can be afforded each, their management will be more easy. The cultivator must bear in mind that the successful growth of plants depends very much on a good start; and as the generality of greenhouse plants will now be commencing to grow, an abundance of both light and air is in the highest degree necessary to ensure a slow, steady, and progressive action. Not only must plants be kept as near the glass as circumstances permit, but the glass itself must be kept clean, and everything connected with the inside of the house in the same state. We said above a slight difference should be made in the management of hard and softwooded plants, but with both nothing like hurrying should be attempted; a short-jointed sturdy habit can only be obtained by the means above pointed out, combined with patience. Many things will now require repotting, and supposing a supply of peat, loam, and well rotted dried cow or other manure, is at hand, it may take place as opportunity offers; speaking in general terms, fibrous peat and silver sand are the principal ingredients for hardwooded plants, using more or less of loam, &c., for free-growing kinds. As some plants require pruning back at this season, allow them to form a new growth before shifting them. Let every attention be paid in potting to thorough drainage, as much of the after-success depends on this. Camellias are now in their greatest beauty, and will require rather more water than usual—manure water occasionally. As plants of these and Chinese Azaleas go out of bloom, place them in a cool house to recruit their energies, and to enable them to break strongly. Sow Mignonette for succession. Tuberoses should now be potted in light rich soil, in 32-sized pots, and when the plants are up a few inches repot them. Sow Balsams, Cockscombs, and other tender annuals for summer display. *Cinerarias.*—Late-struck plants should now be put into their blooming pots; these will succeed those now coming into bloom. Green fly will give some trouble this month; fumigate on their first appearance, or the mischief will be done. Seedlings will now be fast coming into bloom. All will help to make the greenhouse gay; but in selecting those to be saved for another season compare them with the best already out. *Pelargoniums.*—March is an important month with this plant. Fumigating must be particularly attended to; as the plants begin to grow, aphides will make their appearance, and these must be kept under. Watering, too, at this season, requires more than ordinary care and judgment. As but little water is given during the dull winter months, the balls of earth become dry and hard towards the bottom of the soil; and as the general stock is started into growth at this season, care should be taken that, when watering, the water shall penetrate through the ball of earth. Training the plants into handsome shapes, as they progress, should be attended to, tying out the side shoots, and arranging them generally according to the instructions given on several previous occasions. If the foliage has become at all dusty, use the syringe freely until it is clean. Use weak liquid manure when the pots have become full of roots; give plenty of room, light, and air. Fancy varieties require much the same treatment as the other kinds; the warmest end of the house should be allotted to them.

CONSERVATORY.

This will now be at the height of its beauty by the addition to the ordinary stock of plants, of forced Rhododendrons, Azaleas, Roses, and other hardy shrubs, bulbs, &c. Allow nothing to detract from the interest attaching to select showy plants in the shape of faded or withered blooms, or negligence of any kind: a moderate temperature, say 48° or 50° by night, increasing 8° or 10° by day, should be maintained. Let the necessary watering be done early in the morning, that the house may become dry and enjoyable by the forenoon. Many of the best white Camellias will be soiled if exposed to damp. Water plants growing in the open border when dry.

PITS AND FRAMES.

Look over the stock of bedding plants, selecting such varieties as will require to be increased; remove them to a warmer temperature, where they will soon push young shoots, which will strike freely. Plants not required for propagation should be hardened off without delay. Keep them well stopped back, to form bushy plants by the time they are required for planting out. See to the coverings nightly, as the weather at this season being uncertain, one night's neglect may possibly cause much unnecessary trouble. Fumigate occasionally, and look well after mildew. Annuals required for bedding-purposes should now be sown. Peas should be sown in pots for turning out in May.

FORCING.

Vines in bloom require a dry temperature,

accompanied by a little extra heat, in order to enable them to set well and form handsome bunches. 65° will be a good average temperature, but Muscats require 70° to do them justice; stop the shoots at one joint above the bunch, leaving a leader. If the Vines have been cut back shorter than the rafter, tie down the shoots neatly, and thin the berries which are likely to swell, as soon as possible after they can be seen. Keep the air of the houses humid, by syringing the walls and damping the heating apparatus, when the Grapes are swelling and the Vines breaking. When the weather is mild, give air freely, using more caution when cold or frosty, so as to avoid exposing the foliage to chilling currents of air. *Peaches.*—In the early Peach-house, disbud when the fruit is set, taking off a few of the extra buds at a time to prevent giving the trees a check; leave the shoots intended to form the wood for next year's crop regularly over the tree. After the fruit is set, the syringe should be again put in use on fine mornings, to keep the foliage clean and healthy; and the air of the house may be kept moister than when the trees were in bloom. Water the inside borders of vineries and other forcing-houses. *Strawberries* in bloom must be kept fully exposed to light; those swelling may be removed to more heat, to finish them off; supply with liquid manure, and keep down green fly by tobacco. *Melons* should now be ridged out on a nice sweet bottom heat. Let the loam be free from dung, and moderately strong. Keep a top heat of 70° or thereabouts. When the plants have started, pinch out the ends of the shoots, when they will produce laterals, the strongest of which should be selected to fill the frame. Do not permit them to produce fruit till they have a good stock of leaves. Sow for succession. *Cucumbers* should receive the same treatment as Melons, only they require a lighter soil. A moist heat is necessary for both in their early stages. Assist those in bearing by manure water and top-dressings, and maintain a steady bottom heat of 85°. *Pines* showing fruit, keep dry. Like most other things, a dry atmosphere causes their bloom to open more freely, and results in regular-shaped fruit; water them when they are dry at the root, and keep the bottom and top heat steady; from 80° to 95° for the former, and from 60° to 80° for the latter, with air at all opportunities. The young plants will now require shifting into larger pots; use, for growing them, half rotten turfy loam, to which may be added a little soot or well decomposed manure. If the loam is tolerably rich, this will not be necessary; plunge in a brisk bottom heat, and keep rather close till they begin to grow; afterwards, air and light in abundance. Keep on sowing Dwarf Kidney Beans. A pit planted with the above now will produce a valuable crop in April and May. Continue making Mushroom-beds according to the supply expected. Afford air freely, to give colour and flavour to Asparagus forcing in frames.

KITCHEN GARDEN.

With the advance of spring, the number of things requiring to be done in this department daily increases. If our previous directions for trenching and working the land have been attended to, it will now be in good order for sowing Parsnips, Onions, and a few Carrots; the principal crops of the two former should be got in without delay. Carrots in dry soils are apt to become maggotty in hot weather if sown too soon. Dwarf Mammoth and Champion Peas may now be sown, to be succeeded by the taller Marrowfats towards the end of the month; the Long-pod and Green Windsor Beans should likewise be planted to succeed the Fan and Mazagans. Plant out, as time permits, the early and principal crops of Potatoes. Avoid the use of fresh, rank manures; but where manure is necessary, let it be well decomposed, and add dry ashes, guano, or soot as auxiliaries; lime, in moderation, on some soils produces Potatoes of excellent quality. Towards the middle of the month transplant from the frames Cauliflowers, Lettuces, &c., to warm borders; give the autumn-planted crops a good hoeing, or if the soil is very firm, slightly dig it over with a fork. Fresh plantations of Rhubarb, Horseradish, Sea-kale, and Artichokes may now be planted; as the above are to remain in the same place for some years, let the ground be deeply trenched and well enriched with manure. Spring-sown vegetables in frames should have the sashes taken off on mild days, to gradually harden them for pricking out. Autumn-planted Cabbages, encourage by well soaking, in mild weather, with liquid manure, and keeping the soil about them well loosened. To have Leeks in perfection, sow them on a slight bottom heat, and treat them like Celery.

FRUIT GARDEN.

Hardy Fruit—The pruning and nailing of fruit trees should now be brought to a close without delay. In our last Number we recommended materials to be applied by way of keeping the trees from blooming till as late a period as possible; coverings must, however, be removed when the flowers open, as full exposure will then be necessary each day, replacing them at night. The above supposes canvas or netting of some kind to be used; but as the spray of evergreen trees is sometimes employed as a substitute, a portion must be removed so as to admit light and air to the blooms, adding more at night, should the severity of the weather demand it. Break down with the garden fork, the ground rough dug among fruit bushes, and give as tidy an appearance to the ground as possible.

FLOWER GARDEN.

Digging and dressing flower-beds and

borders for summer flowers should be at once proceeded with. Prepare compost required for bedding plants; replant and divide all kinds of herbaceous plants as early in the month as possible. Tigridias, Gladiolus, &c., should be planted towards the end of the month. Gravel walks should be swept and rolled frequently in fine weather. Level down, and rake over ground which has been forked up during winter, to give as neat an appearance as possible to this department. Roses may be planted even up to the end of the month; and although we have done this successfully as late as the first week in May, when the weather continued open, we cannot recommend planting being delayed a day longer than is necessary. We would advise that only the wood which is to be entirely removed be cut out at present; leave shortening the shoots (always to an outer bud) till all chance of severe frost is quite over. The directions given last month respecting pot Roses apply equally well to this.

FLORISTS' FLOWERS.

Auriculas.—These will require more moisture now that they are throwing up their trusses of bloom, but give plenty of air. Cover carefully during frosty nights; being in a growing state, they are much more likely to be injured in March by frost than at any previous time. If some of the varieties appear to be throwing up their bloom too early for exhibition, remove such to a shady northern aspect; this will afford a better head of bloom at any given time. Clean the glass if it has become dirty from covering up during winter. *Carnations and Picotees.*—The soil having been prepared, frosted, well-turned, and kept dry, and the pots having been washed, potting for bloom may be proceeded with, commencing with strong-growing varieties, such as will stand a little bad weather, which we must yet expect to experience. Two, three, and sometimes four plants are put into an 11-inch pot—we prefer three—and a pair of plants in eight-inch pots. In potting, press the soil firmly with the hand. Plants of upright-growing kinds require securing at the time of potting, with neat small deal sticks, or the chances are they will suffer before the time arrives for permanently staking them. As long as the plants remain in small pots, in pits or frames, look closely to watering them: their pots being full of roots, they soon dry, and will suffer considerably from the March winds if this is not attended to. Those who have a large stock, which takes a considerable time to pot or plant out for blooming, would do well to remove their plants to a northern aspect, reversing the frames, and plunging the pots, however temporarily, in ashes. By remaining in a warm, southerly aspect at this season, the plants are prematurely started into growth, and their bloom much weakened. *Dahlias.*—During this month propagating the Dahlia will be at its height, being the best time for the general stock. New or scarce kinds may be continued to be increased for a considerable time later. The reason we prefer plants from cuttings taken in this month is, that being in good time, they do not require forcing to make them forward enough, and are not too early to become stunted Towards the end of the month start pot-roots in gentle heat, moistening them once a-day. As soon as the shoots have pushed from half an inch to an inch pot them into four-inch pots, using rich soil; draining the pots with a little coarse leaf mould, instead of broken pots. The tuber should be covered with soil, and care should be taken not to fill the pots with earth above an inch from the rim, as the tubers increase in size so rapidly that it is difficult to water them unless this has been attended to—the water runs away instead of into the soil. Those who can afford room for potting off their seedlings into single pots when up, may sow seed this month; if not, it had better be deferred till April. A strong moist heat is best for raising it. *Fuchsias.*—The first-struck young plants should now be pushed along, repotting them into five or six-inch pots, using light rich soil. Fuchsias, as grown generally, are too thin of shoots, and too tall; close-growing and short-jointed varieties do well as pyramids, grown with a single stem. Coarser-growing kinds should be stopped once, tying the laterals, when long enough, to form a compact bush; grown in this manner, they will be found much more effective. *Hollyhocks*—Harden the plants well this month preparatory to planting them out in April. Plants struck during winter, or this spring, should have a good shift, and be planted out about a fortnight after the first batch. Seedlings may be planted out in the end of the month, but should be secured from slugs or snails. *Pansies.*—Those in pots should be allowed to have gentle, mild showers; the frames should be kept open as much as possible. Peg out the shoots as the plants progress; small side shoots may be put in as cuttings. Any stock left in pots should be turned out into beds. If a few plants are planted in a shaded border it prolongs the bloom, by keeping them in colour during the month of June. Seedlings wintered in pans should be planted out. Sow autumn-saved seed. *Pinks.*—Top-dress the beds with a mixture of half-rotten manure and half good rich soil, choosing a day when the beds are tolerably dry on the surface. If any plants have been loosened by frost, press them firmly into the soil before they are top dressed. *Tulips.*—Generally these will now be above ground, and will require care in protecting them during frosts, cutting winds, or hail; on all other occasions keep them open. Mats, stout canvas, or what is better than either, frigi-domo, makes a good covering during winter, or at night during the spring months.

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OUR LITTLE LUCY. — GLADIOLUS

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GLADIOLUS OUR LITTLE LUCY.

WITH AN ILLUSTRATION.

THIS is one of the beautiful varieties of Gladiolus which have been raised by Mr. Standish, of Ascot. It is due to the successful efforts of Mr. Standish to state that he has contributed very largely to the improvement manifested among these showy popular flowers. He has, indeed, as respects the status of English-raised varieties, placed them quite on an equality with those of continental origin, and what M. Souchet's Gladioli are amongst those raised in France, Mr. Standish's novelties are amongst those of English parentage. Indeed, we question if some of his flowers—that named John Standish, for example, now unfortunately lost to cultivators—have ever been equalled in those characteristics which mark high quality in the flowers.

The variety we now figure, by a process which scarcely does it justice, has already won a position for itself in the ranks of floriculture. It was shown at a meeting of the Floral Committee on the 27th of September, 1864, and on that occasion won a first-class certificate. In the report of the meeting referred to, it is spoken of in the following terms:—"A very fine and novel variety, of a rosy magenta colour, striped and splashed with white; the lip segments feathered with purple. It will be quite an acquisition among these showy autumn flowers." This brief description we endorse.

So much has lately been written respecting the diseases and culture of Gladioli, both in our own pages and those of our contemporaries, that we need not enlarge on these points. We would, however, refer inquiring readers to several communications relating to the choice of varieties, which have recently appeared in the pages of the *Gardeners' Chronicle*, and we quite concur in the remark made by one of the writers referred to—himself a well-known grower and exhibitor—namely, that a great and manifest advance has of late years been made in the varieties submitted to the approval of the public.

M.

THE CHINESE PRIMULA.

I MAY supplement to what I stated last month under this heading, that at the meeting of the Floral Committee at South Kensington on the 20th ult., a group of flowers was produced by Messrs. Windebank & Kingsbury, of Southampton. One thing was very apparent—that with depth of colour in the double flowers, there was also combined great strength of constitution, judging from the robustness and vigour of the plants. I note this fact, because in the previous paper I hazarded a doubt as to whether such was the case.

I find, also, that Messrs. Windebank & Kingsbury have not as yet succeeded in producing double flowers from the Fern-leaved varieties. When preparing the previous paper, I laboured under the impression that they had done so. That they are on the high road to this desired end there can be no doubt, as they have already semi-double flowers that are highly promising. At this meeting, however, there was produced from the garden of W. S. Roots, Esq., of Kingston-on-Thames, a double variety of P. filicifolia, the flowers of which were a light pinkish rose, quite double, but the petals were edged with white, which detracted from its effectiveness. However, it denotes that double varieties of the Fern-leaved plants are to be obtained. Not only is it true of the plants of P. filicifolia, that the colour of the leafstalks affords no clue to the colour of the flowers, but it is also characteristic of the strain of the older kind in the hands of Messrs. Windebank & Kingsbury.

A description of some of the varieties shown at South Kensington on the occasion referred to will no doubt be acceptable. The Fern-leaved varieties were represented by—

P. filicifolia rubra.—Very deep purplish crimson; flowers very large, bold, and stout, well fimbriated; foliage stout and strong. Very fine.

P. filicifolia kermesina.—A very fine form; of the Primula kermesina colour, and of greater depth and richness than is usually seen. Stiff and vigorous habit.

P. filicifolia alba.—Large bold flowers; pure white, changing to delicate flesh with age; centre lemon, with brownish orange ring. Very free bloomer, and good habit.

Of their old strain there was—

P. striata lilacina.—Light flowers, suffused and slightly flaked with lilac. This is a very pretty flower; the blooms were large, and the foliage stout and strong.

Of double varieties there were the following:—

Purity.—Pure white; large and very double flowers. Remarkably free bloomer; habit good. A fine variety.

Rubra.—Good double flowers of a deep lilac rose. Very free; and of good habit.

Delicata.—Pale blush flowers; large and very double. Strong and vigorous habit.

Magnifica.—Rosy pink. Large and very double flowers, and good habit.

QUO.

A FEW WORDS ON THE APPLE.

THE Apple is one of the most widely diffused and valuable of fruit trees, and it would be idle to enumerate the many uses of its fruit—a fruit which may be enjoyed by rich and poor, and from January to December. Although by some it has been neglected in favour of more showy and luscious fruits, yet the number of those who justly appreciate its value is very great; but owing to the multitude of varieties which now exist, they find it very difficult to make a judicious selection. As, however, experience must count for something, I trust that the result of my observations on about sixty varieties will not be unacceptable to the readers of the FLORIST AND POMOLOGIST.

As the season for grafting is approaching, those who have old or worthless sorts, and from various reasons cannot get a supply of young trees, should now be on the look-out to secure grafts of the best of the newer varieties. I have found the following exceedingly good and useful, and such as must please the most fastidious—viz.:—

DESSERT.	KITCHEN.
1. Early Harvest.	13. Lord Suffield.
2. Cox's Orange Pippin.	*14. Cellini Pippin.
3. American Mother Apple.	15. Cox's Pomona.
4. Fearn's Pippin.	*16. Golden Noble.
5. Ribston Pippin.	17. Kentish Fillbasket.
6. Cockle Pippin.	18. Mère de Ménage.
7. Scarlet Nonpareil.	19. Hoary Morning.
8. Sturmer Pippin.	*20. Waltham Abbey Seedling.
9. Wyken Pippin.	21. Yorkshire Greening.
10. Claygate Pearmain.	22. Beauty of Kent.
11. Golden Russet.	*23. Dumelow's Seedling.
12. Boston Russet.	*24. Royal Russet.

The above sorts are well worth growing. More especially can I speak of those numbered 1, 2, 3, 8, 9, 15, 16, 20, as being much superior to most of the

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older kinds. I should state that those marked with an asterisk are sometimes used for the table, though more properly adapted for the kitchen.

In providing for a supply of the newer sorts for the future, I do not find it advisable to cut down all the old trees in one year, thus destroying the present supply; but by introducing fresh kinds gradually the crop is not materially diminished.

Apples, I may observe, were very abundant in the south; and I think they coloured better than they have done for some years. They ripened very quickly, and I think this induced some of us to gather them too soon, for they have not kept so well generally as in former years when they have hung longer.

Crabwood, near Southampton. J. C. Higgs.

ROSES—THE MANETTI STOCK.

I am never desirous of obtruding my observations on Roses, or on any other commodity; but, as I am in a great measure responsible for the Manetti stock, or rather for Roses on it, I will ask leave to stand up once more in its defence. I may say, I believe with truth, that there is no private individual in England who has had such long and extensive experience of Roses on the Manetti as I have had. The more I know of it, the more I like it. Nurserymen propagate Roses on this stock, and sell out annually; and they cannot propagate it sufficiently to meet the yearly increasing demand for Roses on this stock. Few of them, I believe, have any "continued experience" of Roses on this stock; but I can speak of it from continued experience as an admirable stock, whether you view it *per se*, or as an easy and certain introduction of Roses on their own roots. I have given away this year between seven and eight hundred Roses, chiefly on the Manetti stock, most of which have been here in my home, dry, chalky soil for eight or ten years—some for a longer period. I bought some of these of Mr. Davis, of Newbury, and of Mr. Gill, of Blandford, many years ago. They went through the terrible winter of 1860 unscathed. The Briar Hybrid Perpetuals, almost to a totality, died out, or died afterwards. Of the summer Briar Roses, I lost hardly any.

As "A. D.," in the last Number of the Florist and Pomologist, solicits information, I beg to subscribe this. I have read his article attentively. I cannot conceal from myself that he has wrongly treated Roses on this stock. He has given the reasons of his failure. I must observe that the last summer was quite an exceptional one; the earth was as hot as a fryingpan—in fact, without abundance of water, nothing could live. That was supplied here; and I never had a more prolonged and glorious Rose season—from the 14th of May to the frosts of winter, six months. I ask, in passing, what other flower will do that?

"A. D." speaks of his land being a yellow loam, 2 feet deep. I suppose it is either clay or sandy loam; in either case, he had no business to fail with Manetti Roses, or Briar Roses. I have no such soil. My home garden, with a west aspect, is chalky, shallow, dry, and resting on a dense chalk, that reaches probably to New Zealand. My north-east garden, on the other side of the valley—where I have about 1200 Roses, chiefly on Manetti, some of which have been transferred from my home garden, and some of which have been there from all ages up to ten years—is rich, friable, blackish soil, but shallow, and resting on a gravel substratum, so hard that you could not move it without a pickaxe. Indeed, as Manetti Roses require to be covered over the point of union, and as the soil is so shallow, I am obliged to put a covering of black dung over the gravel, then a little earth, and then the radius of the Manetti

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roots. The plant is then tied to a stick, and the trench, a sort of Celery trench, is filled up alternately with earth and decayed manure (sometimes boxes are used), and each layer is trodden hard against the stock, from which all apparent eyes have been cut. I rarely have any trouble with them afterwards. Now and then the stock of a fresh-planted Rose will throw up a "pirate," hardly ever from the roots. These pirates are insidious fellows, but any man accustomed to Roses will see them in a moment. The leaves are smaller than Rose leaves generally are, and of a dense green, and the shoot is usually reddish at the base.

Having had so many Roses on this stock for so many years, I can hardly think that I could have remained so long under a delusion. I find round here that the Briar Roses are at a discount. My brother has given them up. His land is sandy. I have bought 150 Manetti Roses for him. Last year I bought upwards of one hundred Manetti Roses for Mr. Sturt, at Critchell. They gave great satisfaction. Mr. Adolphus Kent, when staying here, saw them in bloom; and praised them. This year I was asked to buy one hundred more. I saw them a few days ago, and both lots looked well. The land is fine deep loam. Mr. Beck, the new gardener, recommended by Mr. Veitch, has nicely protected their roots with straw, which is an excellent "frigi domo." I may say, in passing, that Mr. Beck is making great improvements.

I will now advert to "A. D's." article. In that article he gives you two very good reasons why his Roses failed—excessive drought, and mis-pruning.

With regard to drought; it is impossible to grow Roses continuously through a season (six months), on their own roots, or on any stock, without an adequate quantity of manure, and a most abundant supply of water. It cannot be too hot for Roses, provided these two are adequately supplied. It is a forcing-house out of doors, with the benefit of air. So far from Manetti Roses not liking heat, I plant my pot Roses on banks like those on which hedges are planted, but I mulch deeply with dung, covered with burnt field ashes (retainers of moisture), and pour abundance of water into the centre of the bank. These pot plants have been removed to my other garden, to await removal next autumn; and the banks are levelled for culinary vegetables. They are noble trees, 5 and 6 feet high, and can be seen any day—such as Duc de Cazes, Prince Camille de Rohan, Maurice Bernardin, and Duc de Rohan, four noble Roses; abundant, and never-ceasing bloomers. I bought them of Mr. W. Paul some years ago. He would be a convert, if he were to see them.

With regard to pruning Manetti Roses, "A. D." is wrong again. Never prune any Rose, on any stock, at the time of planting. Till the eyes swell, you cannot tell the best place to put the knife. Never at any time cut Manetti Roses hard, unless the wood is spoiled. If it is succulent, wait till the eyes swell, and cut to a good eye. Briar Roses will not bloom from succulent wood; but Manetti Roses will bloom abundantly from pithy wood. Briar Roses fail much, especially fresh-planted ones, from not being cut hard enough; Manetti Roses sometimes fail from being cut too hard when fresh planted. Had "A. D." let the succulent wood alone, in due time it would have become hard. If the colour of the skin is yellowish after the Rose is established, I should cut it away in due time. That yellow skin is the effect of injury to the lungs of the plant; it is a sort of jaundice. From first to last, treat them as though they were established Hybrid Chinas.

I am afraid "A. D." will be disheartened, for he is wrong again! He talks of suitability of soil. The Manetti stock is suitable to all soils—clay, sand, chalk, gravel—yes, gravel, if you put in plenty of manure. It will grow also in swampy ground. I have just sent to my new residence twelve plants of Reine d'Angleterre, about 6 feet high, whose roots in winter are in the water.

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They were Mr. Cranston's gift nine or ten years ago. Noble trees! they ceased not blooming all last summer. The land I am going to is deep and strong. In such land, I shall probably have to root-prune every year. That will be the only difference between my management in light and strong land.

I can now only say in defence of Manetti Roses, and in justification of my observations, that there are nearly 1200 Manetti Roses, and Briar Roses, and Roses on their own roots, in my north-east garden, to speak for themselves. I shall be gone, but they will speak for themselves. They are the pick of England; and they are in the highest condition, and are pruned. Visit them between the 12th and 20th of June, and they shall present to you a condensation of vivid and varied lustre—lots of yellows in lines—that shall make your eyes sparkle with delight. It is often rash to speak beforehand, but then "the best prophecy for the future, is the history of the past."

Tarrant Rushton. W. F. RADCLYFFE.

YOUR correspondent "A. D.," in last month's FLORIST AND POMOLOGIST, wishes the opinion of cultivators as to the merits of the Manetti stock. No doubt the Manetti is very serviceable to those who require to propagate Roses in large quantities; but as a stock for permanent use, I have a great dislike to it, and never plant Roses worked on it, except the new ones, which, as dwarfs, I cannot obtain in any other form.

I have for several years noticed that if any of the plants in my beds of dwarf Roses (which consist entirely of those on the Manetti, and those on their own roots), die, they are sure to be those on the Manetti. Another evil is the tendency they have to throw up suckers, which is at all times a nuisance, but especially when the pegged-down system is adopted. I would rather give three times the price for Roses on their own roots, than for those on the Manetti, even were they not nearly the size of the latter.

I would suggest that "A. D." should, in the month of May, give his Rose-beds a thorough mulching with stable manure, immediately after the ground has received a good soaking either from rain or watering. He will find his Roses prefer this plan to continual waterings, which in hot weather often do more harm than good. I would also suggest, that instead of pegging the shoots down in February, he should defer the operation until the buds on the upper portion of the shoots have started into growth—say about the last week of March, or early in April; as by pegging down so early, one advantage of the method is lost—viz., that of prolonging the blooming season. I feel sure he will be well pleased with both the quality of the Roses, and the effect the plants will produce, when grown on this system.

The Cedars, Castle Bromwich. CHARLES JAS. PERRY.

NEW ROSES

A SMALL group of these, consisting of four varieties, was produced by Mr. William Paul at the meeting of the Floral Committee on the 20th ult. They were objects of considerable interest, not only as new varieties, but as showing the fine quality of the flowers that can be obtained from forced plants. The varieties were:—Elizabeth Vigneron, H.P., large and full rosy pink flowers, of fine outline, the habit apparently very vigorous, and blooming freely; Glory of Waltham, H.P., bright crimson flowers, large and full, and very attractive, judging from its habit, will make a capital pillar Rose. These two have already been sent out.

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The others were:—Black Prince, H.P., rich dark crimson flowers, shaded with black, cupped, large and full—it promises to be a free bloomer, and has a vigorous habit; and Dr. Lindley, H.P., a fitting flower to be named after so distinguished a horticulturist. The blooms are of a rich crimson, with dark centres, full, and of great substance. The habit is robust, and the plant appears to possess a thorough hardiness of constitution. The flowers are Mr. Paul's own seedlings, and will no doubt take the front rank in the great array of varieties in cultivation.

R. D.

THE NEW HYACINTHS.

The "new class" produced at South Kensington on the 15th inst. some of the best flowers that have been seen for the last three or four years. As usual the competition was restricted to three persons, and they the competitors who always and only appear. It cannot be a "paying game" to import new Hyacinths for exhibition, though indirectly it is not altogether unprofitable to vendors of Hyacinths, yet one is surprised to see a so-called "amateur" taking part in the competition. This will always be a restricted class as at present constituted, and I think that it only has a professional interest, as it is a fact that the aggregate of the flowers in the new class are inferior to those in the principal stand of eighteen varieties.

In looking over the stands, I found the Judges had disqualified one flower on the ground that it was "out of date." I suppose that by this somewhat ambiguous phrase was meant that it was not a "new variety" as it was said to be, having previously been exhibited, or else been in commerce. When I have asked for a definition of the term "new Hyacinth," I have been told that it is undefinable, and must be left to the Judges. Well, I will suppose that the Judges at the recent show were thoroughly qualified men (though practically the judgment of the new class was accomplished by one man); how is it that a flower which appears in a leading bulb list at 2*s*. each, and quoted in continental bulb lists for several years past, and which has been grown by the writer previous to this season, is not disqualified as being "out of date," and therefore out of competition as a new variety? The answer is simply this, It cannot be helped; such a circumstance will occur as long as so much uncertainty prevails concerning this class, and what the term "new" is really meant to convey.

At the recent exhibition Mr. W. Paul was placed first, with the following new kinds:—

Vunxbaak.—Single red. Very bright deep rosy crimson, with a light edging to each segment of the bells; spike large and close; bells good size, though the segments were somewhat long and pointed. A very striking flower, and altogether a good acquisition.

Sir E. Landseer.—Single red. Pale pink, suffused with carmine. A bright-looking flower, somewhat novel in colour; good spike.

Sir H. Havelock.—Single red. A first-class acquisition to the lilac or mauve section. Colour, plum purple, with dark stripes up the segments of the bells; it also has a rich gloss, and when well reflexed presents a very handsome appearance; good bells. Very novel, and extra fine.

Princess Mary of Cambridge.—Single blue. Very pale blue, with azure blue stripes up each segment; large bells well reflexed, and forming an enormous spike. An extra fine flower.

Adelina Patti.—Single red. Pale mauve, with a deeper shade on the edges of the petals; good spike.

Bird of Paradise.—Single yellow. Pale yellow, but deepening in colour

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with age; large bells, forming a close and fine spike. A good addition to the yellows.

Messrs. W. Cutbush & Son, of Highgate, were second with—

Mrs. James Cutbush.—Single white. A magnificent flower in the way of Snowball, but much superior to it. Colour, pure waxy white; bells very large, and of fine substance; spike very large. This is evidently a flower of a much stronger constitution than Snowball.

Grand Vainqueur.—Single red. Pale blush, with a flake of carmine along each segment of the bell; good spike. Foliage very long.

Hogarth.—Single red. Pale ground colour, with heavy carmine stripes, and the segments edged with the same colour. Very novel and promising.

Auricula's Oog.—Single blue. Deep violet blue, with conspicuous white eye. Novel and attractive; small spike, but very promising.

Orion.—Single blue. Colour darker than the foregoing, which it much resembles at first sight, also having a glossy plum-coloured hue suffused over the violet purple of the flower; bells large and well formed. Novel and fine.

Arnold's Princen.—Single red. One of the mauve-coloured varieties, having a pleasing tint, but the spike small as shown.

Third, Mr. W. Young, gardener to R. Barclay, Esq., West Hill House, Highgate, with—

Mary.—Single white. A good variety in the way of Queen of the Netherlands, but the bells not so large, or the petals so long as the last-named; bells pure waxy white, and very stout; close spike.

Annie Lisle.—Single red. A bright red flower, by no means new, but very showy; medium spike.

La Gaieté.—Single red. Pale blush, with bright carmine stripes, and with an indifferent spike. Disqualified by the Judges as being "out of date."

Omphale.—Single white. Pale blush; large bells; petals long and very pointed. Very indifferent as shown.

General Pelissier.—Single blue. A pale flower, of the colour of Grand Lilas; the bells smaller than the last-named. Foliage short and stiff, and spike good.

Sir E. Landseer.—Single red. Mauve, with a dark stripe up each segment of the bells; good close spike.

It is due to Mr. W. Paul's wonderful group of twenty-four varieties, which was awarded the first prize, that a tribute should be borne here to their incomparable quality. Steadily but surely has he won his way to the highest position that can be obtained in a season. It may be anticipated that the "tug of war" will be desperate in the spring of 1867, as Mr. Cutbush will no doubt do his very utmost to dislodge his successful rival from the "citadel of success."

Quo.

ON THE CULTURE OF THE GENUS AMARYLLIS.

"Of all the genera of hothouse bulbs that are cultivated in our gardens, none can vie with the beautiful genus Amaryllis, of which there are now numerous species, and also a great number of hybrid or mule productions in our collections, some one or other of which are producing their splendid flowers all the year through." So wrote Mr. Robert Sweet forty years ago. There are few who will deny the justice of Mr. Sweet's remarks. Some of the best hybrids are very beautiful; and their utility for conservatory and in-door embellishment is such as to give them a very high place among decorative plants. They are very easily cultivated, and by a little management a succession of bloom may be had all the year through. A very large quantity of bulbs

is not necessary for this purpose, if attention be paid to their period of rest and of growth, resting only a portion of the bulbs at one time.

The great art in cultivating these, and all other bulbs, is to procure healthy vigorous leaves, as on these depends the quantity of nutritive matter prepared and deposited in the bulb, and consequently its ability to flower in the following season. Bulbous roots increase in size, and proceed in acquiring power to produce blossoms, only during the periods in which they have leaves, and in which such leaves are exposed to light; and these organs always operate most efficiently when they are young, and have just attained their full growth. The number and size of the flowers will depend on the organised matter stored up in the bulb, which is a magazine that contains all the nutritive matter collected from the leaves.

During the period of rest, which should average about three months of the year, the bulbs should be kept quite dry. They should be kept in the pots, not shaken out as they formerly used to be, on a dry shelf in the stove. That portion of the bulbs rested during the months of August, September, and October, should be started into growth in November; that portion rested during October, November, and December, should be started in January; and that portion of bulbs rested during November, December, and January, should be started in February or March. With a little care and attention a succession of these beautiful flowers will by this means be secured during the whole of the winter, spring, and early part of summer.

To start the bulbs into growth, all that is required is merely to place them near the light, in a little higher temperature than that in which they have been kept, and to give them a good watering. After this, they should have no more water until the scapes and leaves begin to grow, when they will require regular attention in watering. If the bulbs contain abundance of nutritive matter, they will only require a little heat and water, with exposure to light, to produce their flowers.

As soon as the flowers are fully expanded, the plants should be removed to the conservatory, or drawing-room, if required for that purpose. If, however, seed be wanted, the plants should not be removed from the stove, where a night temperature of from 55° to 60° should be maintained. They will then ripen seed freely, if artificial fecundation has been attended to, either by means of their own pollen, or with that of some other species or variety. After they have done flowering, they should be potted, if they require a larger pot, no matter what may be the time of year, as the leaves are then in healthy action.

The most suitable soil is a good yellow loam, with a little coarse sand mixed with it. In potting, the greatest care must be taken not to break the roots or injure the ball; a little of the loose soil on the surface should only be removed. When potted, they should have a good watering; they should then be placed in a good heat, be fully exposed to the light, and be carefully watered when necessary. Every attention must be given them as long as the leaves are in a healthy active state; a good heat, abundance of light, air in mild weather, and water when necessary, are the chief things required.

When the leaves naturally show symptoms of ripeness or decay, water must be gradually withheld; and when they are completely decayed, the pots should be placed in some dry, moderately warm, situation—on a back shelf in the coolest part of the stove, or in any place where the bulbs and roots are not liable to suffer from damp.

They are increased by offsets from the flowering bulb. These may be taken off at any time, and potted into small pots, then plunged in a hotbed-frame near the glass; they should have air at all favourable opportunities, and be properly watered. As soon as the pots begin to be filled with roots, a shift

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should be given into a larger size, and again plunge them in a hotbed-frame. Under this treatment the plants will soon make flowering bulbs.

Seeds of the Amaryllis, as well as of most other bulbs, should be sown as soon as ripe. They should be sown in pans or pots, and plunged in a hotbed. When the young plants are sufficiently high, they should be potted off, either singly in small pots, or several in large pots. They ought to be again plunged in a hotbed, and be attended to as regards watering and air. As soon as their pots are filled with roots, shift them into larger ones, giving them three or four shifts in the course of the season; they will then grow rapidly, and many of them will flower at twelve months old. After that, they should have the same treatment as flowering bulbs.

The late Mr. Mayes, of the Bristol Nurseries, who had been a pupil of Sweet, was an enthusiastic grower, and a very successful hybridiser of the Amaryllis family, he having raised some of our best hybrids.

The following list includes some of the best varieties in cultivation:—

aulica platypetala	imperialis	marginata	Prince of Orange
Ackermani	Johnsoni	conspicua	pulcherrima
pulcherrima	striata	venusta	radiata
Ariadne	superba	mirabilis	reticulata
Bellissime	Jerdoni	Miranda	refulgens
brasiliensis	insignis	Novelty	sanguinea
Cardinal	intermixta	obscura	spectabilis
Cleopatra	angusta	optima	Sweetii
delicata	lineata	picta	vittata
Diomeda	magnifica	Princesse de Ligne	pallida
elegans	majestica	psittacina	superba
ignescens			

Stourton. M. Saul.

REMARKS ON FRUIT TREE CULTURE.—No. 8.

The tendency to vertical growth, on which I remarked in my last, has led to the adoption of various modes of training fruit trees against walls, many of which are especially designed for the purpose of counteracting that tendency, so as to induce a fruitful habit of growth, and for the avoidance of too much manipulation with the knife. Several of these modes which were adopted in other days were simply ridiculous, because complicated, and in some cases almost impossible to be carried out in anything like a reasonable time; but the point started from, and on which all the operations were based, was that which we are accustomed to call the horizontal mode, which consisted of a central stem growing upright, from which the branches were all trained at right angles. This, to a certain extent, has sometimes been attended with a successful result for a time; but as the operators never went to the root of the matter, by cutting off the supply through the roots, they could not in time prevent the tendency to produce vigorous and unfruitful wood, particularly towards the centre, thereby often inducing premature decay in the fruit-bearing horizontal branches; and therefore no advantage whatever was gained over the much more natural and symmetrical mode of training all the branches from one common centre, or, in other words, that which is usually called fan training.

I consider that all distorted and unnatural modes of training are more or less dangerous according as they approach nearer to, or diverge farther from, the natural tendency of growth; and besides, we can put so many restrictions on growth, that there is, in fact, no need to resort to distorted modes of training. The mode of training out trees in the shape of a fan embraces all the advantages which are required from any system of training, and is applicable to all fruit trees, except perhaps Pears, which, from their extreme vigour

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and mode of growth, are certainly much more manageable under the horizontal mode than any other, provided root-pruning is properly attended to. All stone fruits, however, ought most certainly to be trained on the fan system, if the proper care and attention can be bestowed upon them to prevent them from running into a vigorous woody growth. Where, however, time and labour are short, I will not say but that a greater degree of neatness may be attained, with less trouble, by the horizontal mode than the fan; but even this is only true of Plums, since Apricots, Peaches, and Cherries are very much better under any circumstances when trained fan-shape.

The Peach being one of the earliest trees requiring attention, and also one to which the fan system of training is peculiarly applicable, I will now endeavour to give a plain and practical detail of the method to be followed out in order to secure a healthy and fruitful development of growth coupled with a symmetrical shape. Thus, supposing a young tree to have been planted at the proper season, and also to have been specially selected, or previously prepared, with a view to equalising the growth of the shoots so that none shall predominate in strength, it ought to possess eight shoots, each of about the same length and strength, and this will form a very good foundation to start from. There will be no need to head them back closely, as is too commonly necessary when trees are planted late; but they may be left at about 18 inches in length, rather more or less, according to the size and strength of the wood, and then trained out equally in radiating lines from the centre, taking care, however, to leave the centre well open.

The height of the wall will form a very good criterion whereby to determine if it will be best to plant dwarfs or standards. If the wall is low, say 8 or 9 feet, then dwarf trees only ought to be planted; but if of the height of 12 or 14 feet, then the width between the dwarfs may be increased, and standards planted in the centre between each two; and the training of these may partake of the star shape—that is, the lowest branches may be trained downwards. These trees should have at least ten good shoots to start with; the lowest, however, should be shortened to about a foot, and the highest to 18 inches or so.

Previously to training-in, the shoots should be dressed over, whilst in a dormant state, with a solution of Gishurst compound, to which may be added some clay and flowers of sulphur to give it a thick consistence, as I think that the great benefit to be derived from this kind of dressings consists in their being thick enough to smother and plaster up both eggs and insects. This will be found a great preventive of both mildew and red spider, two very destructive enemies to a healthy development. It would be as well also if the trees could have the advantage of some kind of temporary protection to ward off the evil effects caused by the cold temperature so often prevalent in early spring, which is too often the cause of blistered leaves—an evil so destructive to the early growth, and so permanently injurious in its effects, that every care should be exercised to counteract it. The importance of attention to this point will become more apparent, when we consider that the formation both of healthy sound wood and fruit-buds depends upon the perfect development of the leaves; anything, therefore, which interferes with their development must be regarded as destructive. I believe, myself, that this particular injury is caused by the rupture of the vessels through the action of a low temperature, when the leaves are in a very young and tender state, the injury, however, not being sufficient to kill. The vitality of the leaves is sufficient to attract the sap when it begins to flow freely, but as they cannot make the proper use of it, the result is that abnormal condition commonly called curl or blister; and, therefore, because these injured leaves cannot perform their functions, the operator is often obliged to cut such shoots back, for the chance of a fresh bud breaking; or else to

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depend mainly on the second growth for furnishing the tree, which under any circumstances can never be so good as the first growth is when well developed.

Redleaf. JOHN COX.

ROYAL HORTICULTURAL SOCIETY.

THE Saturday shows are becoming quite an institution in their way, and are very interesting indeed. Small, but charming groups of flowering plants are produced on the last day of each week; and as winter is now fast changing to spring, the groups become larger and more diversified. Spring-flowering bulbs have been the principal things exhibited, and among them were the following varieties of Crocus:—Lord Wellington, deep violet, edged with white; small, but very pretty. Albion, a fine, dark, striped variety. La Majesteuse, dark-striped; large, and very fine. Madame Mina, a very beautiful pale violet, striped; very free-blooming. Comtesse de Morny, striped, but so faintly as to be scarcely distinguishable. Parnassus, another pale-striped flower, with a depth of colour between the two foregoing, but not so free-blooming. Grand Conquerant, pure white, edged with citron; a novel and pretty flower, and very free-blooming. Mathilde, small, pure white. Golden Yellow, deep yellow. Rhea Sylvia, a medium-sized pale-striped flower; very pretty. Commandant, dull pale violet; too dull to be attractive. Duke of Cumberland, deep lilac, with stripes of purple, and tipped with white. Sir Walter Scott, a fine striped variety, darker than La Majesteuse. Alexandrine, lilac and violet ground colour, feathered and tipped with white; very novel and pretty. Elfrida, a small light-striped variety, but remarkably free.

Of Polyanthus Narcissus, the following have been exhibited:—Gloriosa, large pure white, with orange cup, rough on the edges, fine; one of the best. Soleil d'Or, yellow, with orange cups; showy. Grand Primo, pale lemon, with gold cup; and also the white variety of Grand Primo, with bright yellow cup; large and fine. The white variety of Grand Monarque and Grootvoorst, which are the same as the last-named. Garibaldi, same as Gloriosa. States General, white, with golden cup; and a very pale sulphur variety, with yellow cup, under the same name, but very poor. Miss Nightingale, white, with orange cup; small as shown. Bazelman Major, large, white, with deep gold cup; one of the very best; differing from the white Grand Primo only in the deeper colour of the cup. Sulphurea, lemon, with golden cup; also small. Lord Canning, very similar to the foregoing, flowers rather larger, and colour of the cup deeper. Bridal Bouquet, sulphur, with gold cup; not so good as Soleil d'Or, which it somewhat resembles. Bathurst, pure white, with bright orange cup; very good and showy. Sir Isaac Newton, pale yellow, with deep golden cup; more showy than the majority of flowers of this ground colour.

A few Tulips have also been produced; but a more extended notice of these general spring favourites shall be given in due course.

R. D.

THE PITH OF TREES.

SINCE my last observations in these pages on the pith of trees I have given further attention to the subject, and am somewhat surprised that so little is known respecting the use of the pith, especially when so much has been said and written upon the theory of vegetation. I wish also to remark, that if those who write on botany and natural history could avoid, as far as possible, the use of scientific terms, perhaps their writings would be more popular, be-

cause better understood. What has made those of White of Selborne, and of the late Mr. Waterton so much relished but their simplicity? Neither of them used words such as Hydrocharidaceæ, and Caryophyllaceæ. Perhaps such hard words have prevented many from entering upon otherwise so interesting studies. However, I know of no one who has tried to explain the use of the pith of plants, therefore what I have stated, and now state, is entirely from my own observations.

In the early part of last season I split down two Elder shoots of the previous year's growth, exposed the pith in one, and scooped it out of the other; both produced offshoots equally strong. I have the same also to observe concerning a third shoot, from which I removed the pith with a piece of wire; but still more remarkable, I found the same results in green or tender shoots of Elder, on which I operated in the same way; with these, however, I had to pinch off their tender tops in order to get out the pith. Now, in my opinion, the marrow or pith in such is a store of food or juice to nourish plants before their proper sap vessels are formed. I should notice that buds have embryos of pith, and that, even when there is no connection between them and that of the original in the hearts of trees and branches, except by the sap elaborated from the leaves of the young shoots. Therefore, the juices of plants nourish or produce pith as blood does marrow in bones; but it is only found in large ones, small bones are supplied with the fatty matter through their pores. I should state that the hearts of some plants are hollow; still there are traces of pith in them, especially at the joints, and their buds abound with it. Perhaps the pith is absorbed with age, as marrow is to some extent in the bones of birds. Bishop Stanley, when speaking of the bones of geese, says that the marrow "does not entirely disappear till about the end of the fifth or sixth month." Canes and such plants may have pith between the sap vessels in their hearts, which nourish them during their growth or age. This reminds me of having seen coloured liquor put into fresh-bored holes in the pith or heartwood of trees, in the hope of its flowing with the sap and thus staining the wood: but the operation was undertaken in opposition to the fact that the flow of juices is only in the acting sap vessels between the outer wood and inner bark, and those were not only severed in the act of boring, but the corks which kept in the liquid deprived it of any chance of entering them. However, some of the wood was a little stained both below and above the holes; but had no connection with the flow of the sap, the stains being merely like those of rust from a nail in an oak plank.

Cossey Park. J. WIGHTON.

BEDDING PELARGONIUMS.

HAVING given in our last volume the results of the trial of bedding Pelargoniums at Chiswick in 1864, as embodied in the valuable report of Mr. Moore, in the "Proceedings of the Royal Horticultural Society," we now extract from the same publication the conclusions arrived at in the past year, not only as regards the varieties previously experimented with, but those tried for the first time.

The varieties which had been approved in previous seasons were grown in small circular beds, each filled with one kind, so as to show their appearance when planted in masses. The result may be taken as a general guide to the fitness of the respective varieties for bedding-purposes in the climate of London, in soil such as that which occurs at Chiswick, and in a hot and sultry summer like that of 1865.

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Of the plain-leaved varieties with scarlet flowers, the following, which had received marks indicating the highest degree of merit, were confirmed in the position which had been previously accorded to them—namely, Eleanor, Faust, Punch, Trentham Scarlet; and Red Dragon, a variety with very deep scarlet flowers, remarkable for their rich velvety surface, obtained the same number of marks. A grade lower was placed Achilles, and it was confirmed in that position.

Of cerise or rosy-scarlet plain-leaved sorts Lady Middleton was confirmed in the highest place; and Viceroy in the second rank.

Of rose-pinks with plain leaves, Christine and Rose Queen were adjudged to still hold the first rank.

The zonate-leaved series with scarlet flowers yielded the following, still adjudged to be of the first rank:—Adonis, Attraction, Clipper, Garibaldi (North), Martin Gireau, Victor Emmanuel, Vivid, and Volcano. A grade lower were placed Comet, Commissioner, Cottage Maid, Emperor of the French, Harry Hieover, Persian, and Rev. Joshua Dix.

The zonate-leaved rosy-scarlet or cerise-flowered series afforded of first-class sorts the following:—Hector, Herald of Spring, Mons. Martin, Roi d'Italie, and Umpire. To this list of first-class sorts was added Provost. Those of the next grade of merit were Bonnie Dundee, Cecilia, Comte de Morny, Effective, François Chardine, Giralda, and Pink Pearl.

In the zonate group, with salmon or flesh-coloured flowers St. Fiacre was confirmed in its position; while to the same category were added Fanty and Rosamond; Souvenir du 8 Juin being very much like this last. A second position in this series was still given to Prince of Hesse.

In the zonate group with white flowers, no sort was found to be superior to Madame Vaucher. One called White Perfection, which was highly approved last year, was not grown this season.

Of the zonate occulate series, those with white or whitish flowers and a salmon-coloured eye, the sorts preferred as of most merit were Eugénie Mezard and François Desbois. Some of the more recent varieties of this group, however, possessed much promise.

The zonate series, with rose-pink flowers, was represented among first-class sorts by Rose Rendatler and Eve; and amongst those of the second rank by Amy and Minnie. Some very fine varieties in this group were, however, discovered amongst the new sorts.

Of the marbled-leaved zonate sorts, the highest position was still held by Sheen Rival.

The Nosegay series, in so far as the older varieties were concerned, presented nothing superior to Cybister and Stella; while in the group which had received the second position, the only one which was again approved was Magenta.

The silver variegated-leaved series presented several sorts, to which the highest position was again accorded. In the group with zonate and white-margined leaves, there were:—Argus, Countess of Warwick, and Picturatum. Silver Chain was raised to the first class, and Julia was retained in the second class; while of those with white-margined leaves, not zonate, the highest position was allotted to Alma, Bijou, Jane, and Queen of Queens, Mrs. Lennox being raised to this rank; and of those with creamy-margined leaves Flower of Spring stood as a first-class sort. Venus was raised to the same rank, and Meteor was retained in the second rank.

The golden variegated-leaved series is less extensive than the silver. In the zonate and marginate group, the first rank was conferred again in the case of Mrs. Pollock and Sunset. In the marginate, not zonate, set, Cloth of Gold,

Golden Chain, and Golden Fleece, were severally confirmed as first-class sorts; and Golden Harkaway was kept in the second rank. In the group with the leaves wholly yellow General Longstreet was raised to the first rank.

Amongst the novelties very few decisions could be arrived at; but the following were sufficiently developed; the most approved sorts being indicated by an asterisk (*), and the next grade by an obelisk (†):—

Alexandra * (W. Paul).—A darkly zonate-leaved Hybrid Nosegay, of free habit, and effective in colour, having a deeper tint of rose than Amy Hogg. The flowers are crimson in the upper part, and deep magenta below, producing a pleasing play of colour.

Amy Hogg * (W. Paul).—A vigorous-growing Hybrid Nosegay, with slightly zonate-leaves, and very large trusses of flowers standing up above them, the flowers uniformly of a bright purplish rose colour.

Beaton's Indian Yellow * (W. Paul).—A free-growing Hybrid Nosegay, with zonate leaves, the flowers of a novel orange-scarlet tint, and having a glow of yellow when newly opened. A very effective variety.

Beauté des Surésnes * (Salter, Lee).—A beautiful zoned-leaved sort, with large and finely-shaped rosy-pink flowers.

Beauty of Oulton * (Wills).—A very finely marked and effective variety, with leaves of a tolerably even roundish outline, and of a yellow-green colour, marked with a very distinct zone of rich chocolate brown. It was quite an acquisition.

Duchess * (W. Paul).—A free-flowering and dwarfish variety, producing large globular trusses of soft rosy-lake flowers of good form. It is one of the Hybrid Nosegay race.

Forester * (Carter & Co.).—A compact-habited and very telling sort, with green rounded leaves marked with a very dark broad zone, and rosy flowers of excellent shape.

Gaiety * (Wills).—A handsome-leaved sort with golden-tinted leaves marked with a bronze-coloured vandyked zone; flowers scarlet.

Glowworm * (W. Paul).—A Hybrid Nosegay of novel and pleasing character and compact habit, the upper part of the flowers being of a glowing scarlet, the lower magenta flushed with crimson, the trusses erect and abundant.

Golden Queen † (Wills).—Dwarf habit, with golden leaves.

Little Treasure * (Saltmarsh).—Of very dwarf habit, with small zonate leaves, and very bright scarlet flowers. An effective dwarf variety.

Luna * (Saltmarsh).—A very rich and effective sort, with yellow leaves, marked with a bright chocolate-brown zone; the flowers scarlet.

Madame W. Pfitzer * (E. G. Henderson & Son).—A very inferior variety of the occulate series, with zoned leaves, and well-formed flowers, white, with a deep red eye. A plant undistinguishable from this was received from Messrs. F. & A. Smith, under the name of Rosebud.

Mons. G. Natchet * (G. Smith).—A dwarf vigorous-habited variety, with darkly zonate leaves, and ample trusses of finely-shaped bright scarlet flowers. It is also a good pot-plant.

Mons. Barré * (Lee).—A dark-zoned round-leaved sort, with salmon-coloured flowers, paler at the edges, the flowers thrown well up.

Pink Beauty * (Williams).—This has zonate leaves, and very much resembles Beauté des Surèsnes.

Tintoret † (Van Houtte).—A very pretty zonate-leaved salmon rose, of good form, and free-blooming habit.

Woodwardiana * (E. G. Henderson & Son).—A showy variety, with the leaves marked with a faint vandyked zone, the flowers salmony-carmine, and of fine shape.

FRENCH ASPARAGUS.

"A Constant Reader" having requested information as to how the large Asparagus seen in the Parisian markets is produced, we forwarded his communication to one of our correspondents, and the following is his reply:—

"The large blanched Asparagus, seen in the Parisian and London markets early in the season, and which commands as much as from 20*s*. to 30*s*. per bundle in London, is not obtained by the mode of forcing usually practised in this country—that of taking up the roots and planting them in frames heated by dung linings or other means; for with all the care possible the roots of Asparagus cannot be disentangled from the soil, or removed from that in which they have grown, without serious detriment, and such as renders them unfit for nourishing such heads as they would have produced in their undisturbed state. Attempts to do this, or to equal the splendid forced Asparagus obtained from France, have proved in vain.

"The French have two descriptions of forced Asparagus: one is termed *Asperges vertes*, or green Asparagus; the other, *Asperges blanches*, or blanched Asparagus. The green is obtained by taking up the roots and placing them under a frame on a hotbed; but this mode is not adopted when blanched Asparagus is the object in view. In this case the heat is taken to the plants without disturbing them; in the other the plants are removed and taken to the heat. Heat is requisite in either case, but its results as regards the growth of the plants are not the same, inasmuch as it is not applied under equal circumstances, but, on the contrary, to roots in their entirety, and ready to act with full force to produce a vigorous shoot, able to push through a considerable thickness of soil, or other blanching material, before it comes to the light: hence the giant heads, as they are sometimes termed, of blanched Asparagus. On the other hand, when the roots are taken up, the heat may be adequate to what the plant may require, or be, indeed, as great as it can bear; but instead of acting on sound roots, it has to act on such as are bruised, mutilated, and in a great measure deprived of their spongioles; from such plants, smaller shoots, grown so as to produce green Asparagus, are only expected. Many prefer the flavour of this to that of the large blanched shoots, and, indeed, in the tender green state there is more of the Asparagus flavour than in the blanched, so much so that it is said French cooks boil the latter in water in which Asparagus has been previously boiled, thus communicating much of the flavour of the green to the blanched, the fine appearance of which renders it so desirable.

"The blanched heads may be produced by the following method:—The plantation intended for forcing is disposed in beds about 4 feet 4 inches wide, and on these four rows are planted, about 9 inches apart in the rows. The plants are cultivated for three years, and then in the fourth they are forced, when, being well established, they are in a condition to produce very large shoots. The beds are 2 feet apart, and in this space trenches about 20 inches or 2 feet deep are formed. In commencing to force, frames the width of the bed are put on, and the trenches are filled with hot dung to the top of the frames. The frames are also filled with hot dung till such time as the shoots begin to reach the surface. The sashes are then put on and kept close, no air being given. In cold nights the glass is covered with thick straw mats, which are warmer than Russian mats. The linings are turned and renewed so as to maintain a temperature of from 60° to 75°; but I think 70° is quite high enough. The forcing is commenced in November, and carried on successionally till March. After being forced, the same plants are allowed to grow one year in the open air to recover, and they may then be forced again in the next.

"The green Asparagus is procured from hotbeds, planted in preference with

three-year-old plants taken from the open ground, and which have not been previously cut. These are taken up carefully and packed closely on the hotbed, and vegetable mould or leaf mould introduced amongst them, but so that the buds of their crowns may not be covered. In about a fortnight after the sashes are put on green and tender shoots are produced. Thus, by following these methods, either blanched or green Asparagus may be easily obtained.

C."

["A Constant Reader" also complains of his Celery being much injured this season by wireworms, and asks for a remedy. Perhaps some of our correspondents will state their experience on this subject.—Ed. F. & P.]

ON HERONS.

Some years ago I made a few observations upon Herons in another periodical; but since then, I have had further opportunities of observing their habits. Last season a young one was sent me, which had been confined only for a few days. On his prison door being opened he flew off, and I thought he would have preferred his liberty. In the evening, however, he came familiarly up to me, as if we had been old friends; and after having gobbled up some fish, he took possession of his house, and was quite tame during the season: indeed, so much so, that he followed the men digging, and picked up worms; these, however, he soon abandoned at the sight of fish. When hard pressed for food, he greedily swallowed dead birds, mice, frogs, and rats; but if a rat was large, it was really amusing to see him give his prey a good soaking in a pail of water, in order to make the mouthful slip easily down.

As with the Crane family, it is astonishing the quantity of food which Herons devour; but they can equally well endure hunger a long time. When short of food, I fed mine on garbage from the hog tub; and this led me to observe some traits in his character. When I brought food in a basket, sometimes he waited for me at the garden gate; afterwards, he used to walk and fly before me when I took up the basket, and wait upon the top of the door until I came out; then, after gobbling up some food, he flew home before me. During the winter nights he roosted upon the garden wall; but his habits, like those of wild ones, led him to wander by night, especially in moonlight. When I held up a rat or mouse, and called "Franky," he flew to me, making a chattering noise. He was also fond of pecking the boys' legs—in fact, some of them, like the hens, were afraid of him. The latter had reason to be so, for he sometimes felled one of their chickens at a stroke, and swallowed it at one gulp. Wild Herons used to pay him visits, but they ended only in short flights and screaming noises, until the breeding season; then he left me, but came back at the end of that season—not, however, so tame as before—and soon took up his solitary abode by the river.

I may remark that Herons pair in February, congregate in colonies, and make nests on trees somewhat like those of rooks, but larger, and not so closely built. Each nest may contain four or five eggs, of a bluish colour, varying to pale green, nearly as large as those of ducks. As Herons can squat down, their long legs are no hindrance to them when sitting upon their eggs. During the breeding time, they fly both early and late to large moors or lakes, perhaps sixteen miles off, to fish for their craving young. Shortly after these can fly, the colony breaks up, and disperses to lonely places; and the Herons remain singly, or in twos or threes, in order that they may better obtain food. This law of Nature prevails amongst other birds of prey. Kingfishers live

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solitary, except when breeding. Afterwards they are very pugnacious, even in captivity, and, though well supplied with food, they will kill one another; which shows they are still governed by the same "wisely ordained instinct, that each may find its own separate location and dependance." Herons, however, are more social, and are attached to their breeding places, which they only visit early in spring. Their arrival is known by their loud clanking noise. Perhaps in some lonely parts of the country, Herons may make their nests in bushes, or on the ground. If my memory is correct, I have read that they do so in the Orkney Islands, at least, round the stump of an old dwarf tree, on which the colony build.

In former days, Herons were considered a dainty dish; and perhaps they are still on the "Game List." I once had a dish of young ones cooked, but soon found that I might eat them myself; some said they smelt rank, others that they tasted fishy. In connection with this subject, I may mention that there is a belief, especially in the north, that Herons have only one gut, and that live eels pass through them; and, also, that they allure or attract fishes by their feet. The first is founded on the fact of Herons dropping eels from their beaks when suddenly alarmed; as to the other, there seems to be no peculiar smell in Herons' feet. The truth is, when one is seen standing motionless knee-deep in water, he is eagerly watching a "blow hole" of an eel, as a dog does a rat's hole, and as soon as the prey puts out its head, down goes the serrated beak upon it. Formerly anglers used to rub their bait with oil from Herons' feet, and even carried a Heron's foot in their pockets to ensure success: and it is said the notion still prevails among the people in the Feroe Islands.

During severe winters, when rivers and lakes are frozen, Herons must be hard pressed for food. A friend told me that he shot one in such weather, and found a snipe in its stomach. Perhaps the snipe was at some unfrozen spring in search of food, and unluckily for him, the Heron came to it on the same errand, and snapped him up. I may further mention that the late Dr. Neil, of Edinburgh, in reply to some of my inquiries respecting Herons, stated that he observed one of his Herons fell, at one stroke of his beak, a rat which was busy stealing a portion of his food.

A writer, I think Mudie, relates a still more dexterous feat of Herons. He observes, that when an eagle hovers above one in the air, the Heron puts his neck under his wing, and thrusts up his beak, keeping a keen eye upon the enemy, and as soon as he descends, he is impaled upon it, and is hurled down dead or mortally wounded; while the Heron flies on his way. I consider this, however, to be a mere fanciful story, for I doubt if a Heron can balance himself like a kite floating in the air, with legs long beyond the tail, and neck tucked under his wing.

Cossey Park. J. WIGHTON.

NEW BOOKS.

The Treasury of Botany: a Popular Dictionary of the Vegetable Kingdom. Edited by JOHN LINDLEY, Ph.D., F.R.S., and THOMAS MOORE, F.L.S., Assisted by Numerous Contributors. London: Longmans, Green, & Co.

THIS consists of two volumes, of in all upwards of 1250 closely-printed pages, copiously illustrated with wood engravings from drawings by Mr. Fitch; and, in addition, there are twenty beautiful plates on steel, giving representations of the aspects of vegetation in various parts of the world. The work comprises such a vast amount of information on plants and their uses, derived

from the most reliable sources, that it cannot fail to be invaluable to the general reader as a work of reference, and useful to the student as well. The vegetable products used in the arts and manufactures of this country are so diverse in their character, and imported from such distant parts of the world, that information is often sought, and sought in vain, as to their origin and uses; and not unfrequently those even who import or employ a particular article know that it comes from a certain place, and is used for a particular purpose, but nothing of the plant from which it is derived. By those, however, who are desirous of further information, not the imperfect or even inaccurate information too frequent in popular works, it will be found in the pages of the "Treasury of Botany," for there nearly every plant of economical interest is noticed at some length, and even comparatively obscure genera receive a share of attention. The scope of the work will be best understood from the preface, which states that the object "was to bring together, into the form of a dictionary, a concise account of all the plants concerning which a general reader was likely to seek for information; adding thereto, where practicable, longer notices of the more remarkable species, together with such popular matter as would give interest to the otherwise dry technical character of generic or specific descriptions." The plan was arranged with the assistance of Dr. Lindley, and its execution was superintended by him as far as the letter C, after which, owing to his declining health, the whole task of supervision devolved on Mr. Moore. The names of the contributors of the several articles are well known, and though, of course, we do not pretend to have read through a work of such extent, we have, so far as we have seen, found the information trustworthy and the style pleasant. The descriptive letterpress of the illustrations of the aspects of vegetation in different parts of the world is contributed by Dr. Seemann; and there are, besides, a useful glossary of botanical terms, and a list of the English, French, and local names of plants.

One extract will serve to give an idea of the information afforded under each heading. It relates to the genus Agave, respecting which the erroneous popular notion prevails that one of the species, the American Aloe, flowers but once in a hundred years. After describing the characters of the genus, Mr. Moore says:—

"The best known species, A. americana, commonly called the American Aloe, affords a very good illustration of the family. This species is almost stemless—that is to say, its tuft of massive leaves is seated close to the ground, and they spread out on all sides so as to occupy considerable space. These leaves are very thick and fleshy, consisting of hard, firm, pulpy matter intermixed with fibres; they are from 3 to 6 feet long, furnished with hard spines, both along the margins and at the point. These leaves are very durable, continuing to exist for many years. The plants are long in arriving at a mature or flowering age; indeed, so slow is their progress, under the artificial conditions in which they are placed in our gardens, as to have led to a popular though erroneous notion that they flower once only in a century. In reality they flower but once, the mature condition being attained in a longer or shorter period, ten to fifty or seventy years or more, according to the accelerating or retarding influences under which they are placed. Having, however, acquired full growth, the plant produces its giant flower-stem from the centre of the leaves, after which it perishes. New plants are formed around the base of the old one in the form of suckers. After the first appearance of the stem, it grows very rapidly, until a height of from 15 to 20 or even 40 feet is reached; and, towards the tip, a multitude of symmetrically-disposed horizontal branches are produced, at the ends of which branches are crowded the numerous erect yellowish green flowers, by which a sweetish liquid is secreted. The flowering plant remains for some weeks an object of interest, the flowers being durable and produced in succession.

"The American Aloe appears to have been first introduced to Europe in 1561, at which date it is recorded as being in the possession of Cortusus. Parkinson, in 1640, relates that it was first brought into Spain, and from thence spread into all quarters, but is silent as to its being in England. A plant flowered in Paris in 1663. Mr. Versprit, of Lambeth, flowered one, 12 to 15 feet high, about 1698, it being then a great rarity. Two were bloomed at Hampton Court about 1714. There is a wood engraving extant with the inscription '*Aloe americana*

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quæ Sonderbusæ floruit, 1662.' A plant flowered at Leipsic in 1700. Mr. Cowell, in 1729, flowered one at his garden in Hoxton; and this, he asserts, was the first seen in England, the others, mentioned above, not being the true American Aloe. There is a plate of this plant, by Kirkall, in mezzotinto, dated September 23, 1729. Another flowered at Eaton Hall, in 1737; a plate of it, engraved by Toms from a drawing by Badeslade, bearing date November of that year. This plant opened the crown for flowering on June 5th; the stem-bud appeared on the 15th, and grew 5 inches a-day for some weeks; the flower-branches were perfected in twelve weeks, and then it stood for a month while the buds were forming; the number of flowers was about 1050. Two plants, about fifty years of age, flowered at Hampton Court in 1743, their respective heights being 27 feet and 24 feet. The flower-stems appeared on June 3rd, were in perfection in the middle of August, and continued blooming till the middle of October. A plant which flowered near Carlsbad in 1754 was 26 feet high, and produced twenty-eight branches, which bore above 3000 flowers. Another flowered at Leyden in 1760, and a third at Friedricksberg, in Denmark, 22 feet high, with nineteen branches, and more than 4000 flowers. The tallest of which we have any account, was one that bloomed in the King of Prussia's garden, and this reached 40 feet in height."

A Practical Treatise on the Culture of the Pine Apple, by David Thomson, Archerfield Gardens. Blackwood & Sons, Edinburgh and London.

Those who had the advantage of being present at the Edinburgh International Show in September last, will not require to be told that the author of this work is a most successful cultivator of that which has been called the "king of fruits;" and there are but few who do not know Mr. Thomson as a thoroughly practical writer on gardening subjects. Accordingly it will be found that in this treatise plain directions are given as to the mode of securing good crops of Pine Apples, and as these directions are the experience of one who has been very successful in this branch of fruit culture, they may fairly be supposed to lead to a like result in the case of those who properly follow them out.

On the subject of pineries Mr. Thomson says:—

"For summer growth I would give the preference to span-roofed houses, running north and south. In the morning and afternoon they receive the full sun, and for a period in the middle of the day, when the sun is in his meridian, the Pines are, in such houses, partially shaded from the scorching rays of the sun, while at the same time they are exposed to a great diffusion of light. Such houses are decidedly the best for summer growth; but, for six months of the year, they do not, from their position, embrace so much direct sunshine as a lean-to house facing due south. Moreover, from the greater amount of glass as a radiating surface in span-roofed houses, they require more fire heat to keep up the temperature. In these respects the lean-to gives advantages over the span-roofed pinery in whatever position the latter is placed. For starting Pines in December and the two following months, as well as for swelling off fruit during winter and early spring, I recommend lean-to houses.

"For a sucker-pit, a lean-to pit is very well adapted, as the young plants can be kept near the glass, and well exposed to light. It will be observed that the accommodation which I prefer and recommend is partly span-roofed and partly lean-to.

"In the formation of the Pine ground, the lean-to or early houses should be on the north of the space selected, so that the back wall forms the shelter from the north which is so desirable; the span-roofed structures to stand north and south, or at right angles with the early lean-to houses, and at a sufficient distance from them not to obstruct sunshine. The early house would thus be nearest the boiler in the back shed, and would form the very best shelter to the span-roofed or succession-pits, which should not be very high. I am aware, indeed, from experience, that such houses and arrangements are not absolutely necessary for the production of first-rate Pines; but these arrangements afford great advantages and convenience, and I recommend them as admirably adapted for the culture of this noble fruit.

"The Pine Apple being a fruit which requires a high temperature, particularly in some of its stages of growth, there should be a good command of heat both for top and bottom. It is not only a false economy to stint the amount of pipes employed, but a larger heating surface moderately heated is much more conducive to the health of plants than a smaller surface kept at scorching heat. I therefore recommend a liberal amount of pipes and plenty of boiler power. Besides this, I feel fully persuaded, from my experience in the use of coverings applied to the glass, that, in the case of fruit swelling off during the colder months

of the year, the double glazing now discussed in the gardening press would be an immense advantage. A high and steady temperature could be much more easily and economically maintained, and without a parched atmosphere, which in the case of hard forcing in winter requires so much and such constant counteracting.

"I have a decided objection to flat-roofed pineries. They are dark, and very productive of drip in winter, both conditions most undesirable in the culture of most plants, and particularly in that of the Pine Apple. Ventilation should be amply provided for at the apex of the roof; and, particularly in fruiting-houses, there should also be ventilators at intervals along the front, so placed as to cause the air to pass inward in contact with the hot-water pipes. Front ventilation is not to be recommended as a rule, but it is well to provide for it in the erection of pineries, so that in very hot calm days it can be applied, especially in the case of fruit that are colouring.

"All pineries and pits should be provided with a steadily acting steaming apparatus, which can be used or not according as circumstances demand. An open gutter rising out of the flow-pipe at the front of the house, into which the water on its way from the boiler flows and passes along the whole length of the house, and descending into the return-pipe, is the best means of keeping up a steady supply of moisture that ever I have tried. This can be used or not, at the seasons when moisture is required or not required, by simply corking up the pipes through which the water flows into the open gutter. The pipes should also be so arranged that, by means of stop-cocks, the bottom heat can be shut off, and applied and regulated according to the amount recommended for the different stages of the growth of the Pine.

"In all Pine-stoves there should be a tank into which to conduct the rain water from the roof, and passing through the tank a coil of hot-water pipe to warm it."

OUR MONTHLY CHRONICLE.

The year 1866 will be a busy one; the horticultural campaign has commenced early; already two spring shows have been held in London, and others will follow in quick succession throughout the summer, at the Regent's Park, Crystal Palace, and Kensington; but the great event of the season will be the International. The progress of this is most gratifying. Fresh assurances of support continue to be received, as well as substantial additions to the funds necessary for bringing to a successful issue this great undertaking, which it is to be hoped all will assist to the best of their ability. Though not in connection with the Exhibition, a proposal was made at a meeting of gentlemen interested in horticulture, with Mr. W. Paul in the chair, to hold a public dinner on the 24th of May, so as to afford those visiting the Exhibition an opportunity of meeting together, as it would be impossible for all to do at the banquet at the Guildhall. The proposition was cordially approved of, and a Sub-committee appointed, with Mr. R. Dean as their Honorary Secretary, to carry out the arrangements.

Royal Horticultural Society.—At the first Spring Show, which took place on the 15th, there was a very excellent display, particularly of Hyacinths, which were the speciality of the occasion. Other spring bulbs, however, were also well represented, and the Roses, Rhododendrons, and other forced greenhouse plants and novelties were produced in good force. Of the new Hyacinths an account is given in another page; but the magnificent spikes of those shown by Mr. William Paul, of Waltham Cross, in the class for eighteen, cannot pass unnoticed. The sorts were S.B. King of the Blues, a noble spike, fully justifying the anticipations formed of it when it first came out; Grand Lilas, Charles Dickens, and Marie; D.B. Van Speyk, Garrick, and Laurens Koster; S.R. Garibaldi, Von Schiller, Solfaterre, Koh-i-Noor, and Macaulay; D.R. Lord Wellington; white, Alba maxima, and Mont Blanc; black, or nearly so, Feruck Khan, and General Havelock; and Ida, yellow. It is impossible to speak too highly of this fine collection, for the spikes were massive, and their colours most beautiful and fresh. As a matter of course a first prize was awarded; the second went to Messrs. Cutbush, whose collection also contained many fine spikes; but the run between the two great competitors was not so close as in former years. Mr. Kirtland, Albion Nurseries, Stoke Newington, came in third. In the amateurs' classes some very good spikes were shown by Mr. Young, gardener to R. Barclay, Esq., Highgate, and Mr. Bartlett, of Hammersmith, and some were also shown in glasses. A fine collection of 120 pots, which contributed much to the effect of the Show, came in addition from Mr. W. Paul, who also exhibited collections of Tulips, Polyanthus Narcissus, Crocuses, and Lilies of the Valley, and received first prizes for each. Collections of similar subjects also came from Messrs. Cutbush and Mr. Macintosh, Hammersmith, among nurserymen, and from Mr. Young and Mr. Bartlett among amateurs. Of Roses, beautiful groups were shown by Mr. W. Paul and Messrs. Paul & Son, forced Rhododendrons by the first-named, Messrs. Cutbush and Mr. Young; and there was a good display of

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miscellaneous stove and greenhouse plants from Messrs. Lee, of Hammersmith. A few greenhouse Acacias and forced shrubs were exhibited by Messrs. Cutbush and Mr. Young, for which the former were awarded first prizes; some small Epacrises were also shown; and from Mr. Bull came several handsome varieties of Aucuba japonica, some of which were in fruit, and a numerous collection of new and rare plants. Some fine fruiting Aucubas were also sent by Messrs Lee.

At the Floral Committee on the 20th, first-class certificates were awarded to Mr. W. Paul's new Hyacinths, Vunxbaak, Sir Henry Havelock, and Bird of Paradise, and to his Black Prince Rose, a fine deep velvety crimson. Of Orchids there was a good dispay, and several special certificates were awarded, and among Chinese Primulas there were several acquisitions, which have been noticed in another article. Fruit was confined to Black Alicante, Muscat of Alexandria, and Lady Downe's Grapes, of which Mr. Tillyard, gardener to J. Kelk, Esq., M.P., exhibited excellent bunches in beautiful condition.

At the usual fortnightly meeting Lord H. G. Lennox, M.P., presided, and the room was crowded with visitors anxious to see the blossoms of Amherstia nobilis, which it had been notified would form the subject of a lecture by Mr. Bateman. These came from Chatsworth, where the plant has this year produced numerous racemes of its glorious crimson blossoms; but though the late Duke of Devonshire, a great enthusiast in gardening, made it the object of a special mission, and Mr. Gibson, now the Superintendent of Battersea Park, was successful in introducing the first plant of it into this country in 1837, it did not flower for the first time in England at Chatsworth, but at Mrs. Lawrence's, at Ealing Park. Mr. Bateman, after giving some instances of the poisonous properties of Andromeda floribunda, which appear not to be sufficiently known, and commenting on the various Orchids shown at the meeting, gave a history of the discovery and introduction of the Amherstia. He ascribed the non-success in flowering it at Chatsworth to the plant having been grown in a kyanised tub. Mr. Bateman's remarks were listened to with much attention, and on their conclusion it was suggested by the Chairman that it would be a graceful act to present the blossoms to Lady Hay Williams, the daughter of the Earl of Amherst, partly in whose honour it was named. Twenty-one new members were elected, and seven horticultural societies admitted into union. With reference to this, it may here be stated that the Royal Horticultural Society now offer certain privileges to societies admitted into union with it—viz., that of receiving copies of the "Proceedings" and "Journal," a transferable ticket conferring certain privileges as to admission to the gardens at Kensington, and purchase of tickets; forty orders of admission to Kensington and Chiswick; participation in the ballot for plants; a share of the seeds and cuttings distributed; and the right of exchanging plants. It has also been decided that gardeners may, on application to the Assistant Secretary at South Kensington, receive the Journal of the Society at one-half the charge to the general public.

Royal Botanic Society.—The first spring show of this Society was held on the 17th, and being only two days later than the one at Kensington, was in a great measure a repetition of it. It was, however, a very effective display, and more extensive than the corresponding show of last year. In Hyacinths Mr. W. Paul walked over the course with his fine collections already noticed; but Mr. Davies, of Stanley Nursery, Old Swan, Liverpool, had a set of twelve, among which were some very good spikes, though by no means equal in quality to the splendid ones from his more successful concurrent. Tulips, Polyanthus Narcissus, Lilies of the Valley, Crocuses, and Rhododendrons were again shown in great perfection by Mr. W. Paul, and nice collections of Cyclamens came from Messrs. E. G. Henderson and Mr. Wiggins, of Isleworth. Of Roses, two groups, the one from Mr. W. Paul and the other from Messrs. Paul & Son, were of remarkable beauty, and there were also some boxes of excellent cut blooms, as well as of Camellias. Stove and greenhouse plants, both fine-foliaged and flowering, were in tolerable abundance, there being exhibitions of these from Mr. Williams, Messrs. Lee, and Mr. Wheeler, gardener to Sir F. Goldsmidt, Bart.; and of new plants, &c., Mr. Bull again contributed an extensive collection. Forced shrubs and Acacias were shown by Mr. Young, who also took the first prize for Hyacinths in the amateurs' class, and the second for new Hyacinths; but the best exhibition of this kind consisted of a dozen plants of Deutzia gracilis from Mr. Reeves, of the Ladbrook Nursery, Notting Hill. They were in six-inch pots, and were perfect masses of bloom. Two new varieties of Chinese Primulas from Messrs. E. G. Henderson made their appearance, and both appear to be great acquisitions; one was called Stewarti, and had flowers as large as a five-shilling-piece, white, beautifully mottled and striped with purplish crimson; the other was named Mrs. Eyre Crabbe, and was smaller than the preceding, but double, and the white ground suffused with pink.

Sanvitalia procumbens.—Messrs. Haage and Schmidt, of Erfurt, give, in a recent Number of the "Revue Horticole," an account of a double variety of this pretty annual, and which they consider one of the most valuable acquisitions in its way which has been made for some years. It sprang up among a bed of the single variety; and, after having grown

it for two years, Messrs. Haage & Schmidt state that the double flowers are so constantly reproduced that not more than 10 per cent of the seedlings come single. The double variety is more vigorous than the single, and in the flowers the black disk of the latter has entirely disappeared. The flowers are an inch or more in diameter, double to the centre, and of a uniform bright yellow It is stated that they are of longer continuance than in the single form, and that they are also produced in greater profusion. The plant is recommended as producing a fine effect as a dwarf bed or edging.

Mr. J. Gould Veitch having returned from Australia and the South Seas, we have much pleasure in stating that he and his brother, Mr. Harry J. Veitch, have been admitted into partnership with their father, and the business of the Royal Exotic Nursery, Chelsea, and Coombe Wood establishment, will now be carried on under the designation of James Veitch & Sons.

International Horticultural Exhibition and Botanical Congress.—Influential Local Committees in conjunction with this undertaking have been established in England at Sleaford, Bristol, Oxford, Warrington, Nottingham, Derby, Leamington, Hereford, Hertford, and Doncaster; in Scotland for the west, south, and north of that country respectively; and in Ireland for Dublin and Belfast. Honorary Local Secretaries have likewise tendered their services at Manchester, Taunton, Ascot, Chester, Bradford, Ipswich, Chelmsford, Coventry, Redditch, Leicester, Huntingdon, Chepstow, and in Jersey. Some of the above Committees have raised considerable sums—thus, that for Glasgow and the west of Scotland has contributed £127 3*s.*; Doncaster, £50 8*s.*; Bristol, £18 18*s.*; Ascot, £14 14*s.*; Warrington, £24 3*s.*; Chelmsford, £63; Coventry, £26 5*s.*; Manchester, £31 10*s.*; Oxford, £5 5*s.*; Derby, £21 1*s.*; Belfast, £36 15*s.*; Hertford, £10 10*s.*; Elgin and North of Scotland, £25 4*s.* The Committee of the Botanical Congress, to be held under the presidency of Professor Alphonse de Candolle, now comprises the names of James Bateman, Professor Babington, W. Baxter, J. J. Bennett, Rev. M. J. Berkeley, Professor Bentley, W. Carruthers, Professor Daubeny, Charles Darwin, Dr. Hogg, W. Masters, J. McNab, A. G. More, Dr. Moore, T. Moore, J. Miers, W. Paul, Dr. Prior, J. G. Veitch, Dr. Welwitsch, Dr. Wight, and James Yates; and papers have been promised by Mr. J. E. Howard, Dr. F. Mueller, Professor E. Morren, Professor Lecoq, Mr. W. G. Smith, Dr. Seemann, Dr. Masters, M. Van Hulle, Mr. Tuffen West, Dr. Moore, Mr. A. G. More, Mr. James Anderson, and others. It may be of interest to add that the Right Hon. the Lord Mayor has appointed six of the Corporation to assist in making the arrangements for the grand banquet to be held at the Guildhall on May 22nd.

Mr. William Paul's Show of Spring Flowers is held this year, as last, at the Royal Horticultural Society's Gardens, South Kensington. It was opened to the public on the 21st, and will continue till the 3rd of this month. It is a charming and effective exhibition, most tastefully arranged, and the flowers individually are of the highest merit, as may well be supposed, since many of them are those with which Mr. Paul has been so successful at the spring shows.

Messrs. Cutbush's Spring Show has been held this year at the Crystal Palace instead of at the Highgate Nurseries as heretofore. It continued from the 17th to the 31st of March, during which time it offered a most attractive display. It occupied a double row of tabling 300 feet in length, and consisted of somewhat less than 900 pots of Hyacinths, Tulips, and miscellaneous flowering plants, the whole covered with a new canvas awning, similar to that used at the Rose Show, and with such good effect in showing off the colours of flowers to the best advantage. Messrs. Cutbush's exhibition, it is scarcely necessary to add, was of great excellence.

New Varieties of Dianthus.—An account of two new varieties of Dianthus is given by M. Carrière in "L'Horticulteur Français;" one is named Madame C. Petit, the other Dianthus Quetierii, after their raiser. Madame C. Petit was obtained by fertilising the Clove Carnation with the pollen of Dianthus Heddewigii, and resembles the male parent in the character and colour of the flowers, and the female in its habit of growth. The flower-stems are from 15 to 20 inches high, erect, and stiff; and the flowers velvety, dark reddish crimson, the edges of the petals irregularly toothed. It is described as being a great acquisition, being not only perfectly hardy, but always in flower till its blooming is arrested by frost. Dianthus Quetierii is stated to have been raised from Dianthus Heddewigi and Dianthus hybridus multiflorus. It is described as being very dwarf, the leaves about 4 inches in length and a quarter of an inch in breadth, the flower-stems barely 8 inches high. The flowers are very double, dark reddish crimson, and produced in such long succession that the plant may almost be said to be perpetual-flowering. From its low growth it is particularly well adapted for edgings; and the foliage forms a fine green carpet, which serves to set off the deep colour of the flowers.

OBITUARY.

Mr. Francis Dickson, of the firm of Messrs. F. & A. Dickson, of 106, Eastgate Street, Chester, died at the Upton Nurseries on the 3rd of March, in his 73rd year, having been born at Edinburgh on the 25th of December, 1793. He was the youngest son of the

founder of the well-known nurseries of Dickson, Brothers, of Edinburgh, and the last of his immediate descendants engaged in the nursery business. He left Edinburgh at an early age, and entered the celebrated nurseries of Malcolm, of Kensington, and after studying his profession there for some time, he returned to Edinburgh, and in 1819 commenced business at Chester. He was the intimate friend of Mr. Loudon, and of Thomas Andrew Knight, Esq., and being a man of great information on all branches of the nursery business, he was frequently consulted by them. In the cultivation of hardy trees and shrubs and herbaceous plants he was enthusiastic, and the collections of these which he had brought together at Chester are amongst the most extensive in the country. All bear testimony to his genial, kindly disposition; and the respect in which he was held was evidenced by the large number of his friends and fellow townsmen who attended him to his last resting-place, in Chester Cemetery, on the 8th. His two sons, Mr. F. A. Dickson and Mr. Thomas Dickson, succeed him in the business.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Orchids.—As the successful blooming of these fine plants depends on the strength and vigour of the shoots, do not allow anything to check their progress. A moist atmosphere, without, however, encouraging water to lodge about their roots, and a nicely regulated temperature, will be the principal points to attend to.

GREENHOUSE.

Camellias.—The blooming season is now nearly over, and some cultivators prefer shifting them into fresh pots at this season; if such are requisite, dry turfy loam and peat, two-thirds of the former to one of the latter, will be a safe compost. Pay particular attention to well draining the pots; use no manure in the soil, but depend on it in a liquid form for what extra help they may require. Give them a little extra heat, by early closing the house, now that they are making their wood, and use the syringe freely. *Cinerarias.*—To prolong the beauty of the bloom, attention must be paid to watering and shading. In selecting seedlings, compare them with the best out in the same class. To procure good seed, select a few of the finest-shaped kinds, of good habit, and place them in a frame or house by themselves, and keep the bees from them. The work of fertilisation should be done by hand, using a camel's-hair pencil. *Epacris.*—Early-blooming kinds should be cut in and placed in a close frame, or moderately warm house, to encourage them to break, syringing overhead to assist them; when started a couple of inches, repot such as require it; turfy peat and sand, with plenty of drainage, will grow them in perfection. *Pelargoniums.*—These will be making great progress this month, and, to prevent their becoming drawn, should have plenty of room. Continue tying the branches as they increase in size, and keep the foliage clean. Green fly must be kept under; fumigate effectually, just before the plants are coming into bloom, two nights in succession. Watering must be well attended to this month; the pots being full of roots, the soil dries very fast during bright weather. Shade as little as possible until the plants are coming into bloom; a little shading, however, on a bright day following dull weather, would be beneficial.

CONSERVATORY.

As solar heat and light increase, the house may be closed rather earlier in the afternoon, to dispense with fire; give air, however, betimes in the morning, and let the necessary waterings and cleaning be done as early as possible. As the permanent plants have now commenced growth, let them stand clear, that the young shoots may obtain their full share of light. Let the climbing plants be trained occasionally, avoiding, however, anything like a formal arrangement.

PITS AND FRAMES.

Take every possible means to harden off the stock; the propagation of such things as Verbenas, and other soft-growing plants, may yet be prosecuted. Stocks and other annuals required early should be forwarded in cold frames, and others sown for succession.

FORCING.

Vines.—Look at last month's directions; bring on succession vineries gently. Vines in pots, and those in inside borders, keep moist by occasional waterings, using liquid manure freely during active growth. *Peaches*, disbud from time to time; tie in shoots; syringe frequently; close rather early in the day to obtain additional heat and save fires; give air liberally in the forenoon; avoid draughts. Keep the succession-house rather dry till the fruit has set; afterwards syringe, &c., as directed last month. *Strawberries* getting ripe, allow more air to colour and flavour them. Bring on successions; water with liquid manure while swelling. *Pines* out of bloom, keep damp at root and top; maintain a steady bottom heat; the temperature of the house should be by night 65°, by day 75°. Successions recently potted, keep close till growth commences, after which give more air; do not water till they begin to make fresh roots. *Melons*, stop and train; keep

a good heat; fertilise the female blooms; earth up as wanted; bottom heat from 75° to 80°; top heat by day the same, 68° by night; water sparingly; use pure loam without manure to grow them in, and make it rather firm. Close early on sunny days, damping the walls or soil at the same time. *Cucumbers*, stop and train carefully; keep the vines thin; avoid taking off full-grown leaves of either Cucumbers or Melons; keep the fruit in a cool place when cut; the heat, both top and bottom, should be the same as for Melons. Sow hardy kinds towards the end of the month, for ridging out under hand-glasses.

KITCHEN GARDEN.

Continue to plant out Cauliflower, Lettuce, &c., from the frames, choosing a showery day for the purpose. A deep rich soil should be afforded them. Earth up and stick Peas when sufficiently high, and sow the taller kinds for the main summer crops; keep sowing every fortnight Broad Beans, and earth up early-planted ones. Dwarf Kidney Beans and Scarlet Runners may be planted in warm situations. The main crops of Borecole, Broccoli, Savoys, Brussels Sprouts, &c., should be sown forthwith. Complete sowing Carrots, Beet, Salsafy, and Scorzonera, &c. Prick out the early-sown Celery under a hand-glass, or in a frame. Sow in the open ground for winter crops when the weather is showery. Divide herbs, and make fresh plantations. Sow to make good for failures. Towards the end of the month get a ridge prepared for hand-glass Cucumbers.

FLOWER GARDEN.

Finish the planting of deciduous and evergreen shrubs without delay; the latter will, however, succeed till the end of the month, if the weather be showery. Mulching, however, and frequent dampings overhead will be necessary. Turn over and prepare beds and borders, for planting the various bedding-out plants, that everything may be in readiness when the season arrives. Phloxes, Pentstemons, Carnations, Stocks, and similar things, should be turned out into beds, &c., without delay. Sow annuals. Many kinds of perennial plants may yet be divided for increase, or where the plants are too large. Attend to neatness, and watch for vermin. Finish pruning Tea and China Roses, and their hybrid varieties, and other shrubs, as danger from frost is nearly over. Climbing plants against walls and trellises should be pruned and neatly tied in, if not previously done. *Roses.*—Planting is now becoming somewhat hazardous; but the danger may be obviated by carefully syringing the heads and stems, should the weather continue dry. Pruning should now be finished, both with hardy and tender varieties. In pots the maggot will require vigilance to prevent its doing much mischief; the first green fly, too, must be kept down on its appearance by fumigation. Where blossoms are making their appearance liquid manure should be given once or twice a-week.

FLORISTS' FLOWERS.

Auriculas.—In some localities this chaste spring flower is already repaying the care and attention that have been bestowed upon it, by expanding its beautiful blossoms. The frames should be shaded with thin canvas during the heat of the day, and about the middle of the month remove them to a cool situation facing the north. This will prolong the bloom considerably. Water rather freely now when the plants are growing. *Carnations and Picotees*—Finish potting for bloom without loss of time. The pots should be raised from 2 to 3 inches from the ground, on strips of wood. If there are any plants left after filling all the pots required, they may be planted out in well-prepared beds, which should be elevated, in case it be a wet summer, as well as for the convenience of layering. Sparrows at this season often do much mischief by eating the points of the young shoots; pieces of grey worsted tied along the rows, a few inches above the plants, will prevent the mischief. *Dahlias.*—This will be a busy month as regards this plant. Propagating will be at its height. Pot off the plants as soon as rooted, growing them in gentle heat, and harden them towards the end of the month, when, if room can be afforded, they may be repotted into three or four-inch pots. Pot-roots, if started now, will make good plants; they will not require so much heat, when once started, as spring-propagated plants. Sow seeds in a brisk heat. *Fuchsias.*—All that is required to make fine plants is plenty of room; give this and a moist genial atmosphere, and they may be grown to any size, if good rich soil is used. Cuttings may still be put in for late-blooming plants. *Hollyhocks.*—Prepare ground for planting out, which may be done towards the end of the month. If the ground has been deeply trenched and plenty of manure given, the Hollyhock will succeed in almost any soil, but should not be planted under trees, or too near hedges. The plants should not be allowed to become pot-bound; give them a shift if the planting has to be deferred. Seedlings, if large enough, may be planted out at once. *Pansies.*—Take the small side-shoots, and those produced from the centre of the plant, and put them in as cuttings in store pots, under glass, in a cool situation. These will make fine plants for blooming in September, and they will again produce considerable increase. By this treatment the spring blooms are much larger, as the principal shoots are strengthened. *Pinks.*—See that the sparrows do not attack these; if so, scare them away in a similar manner to that recommended for Carnations and Picotees. If for exhibition, thin the side-shoots as soon as long enough. *Tulips.*—Protect these well from hail-storms. The less rain they have the better; but if by any chance they should become wet, frost must be kept from them until they are thoroughly dry.

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Van Mons Léon Le Clerc.

CHROMO-LITHOGRAPHED BY F. WALLER, 18, HATTON GARDEN.

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VAN MONS LÉON LECLERC PEAR.

WITH AN ILLUSTRATION.

It is now about twenty-five years since the subject of our present illustration was introduced into this country. At that time the cultivation of fruits had not acquired that great development which is so characteristic of the horticulture of the present day, and it was not till many years after its introduction that Van Mons Léon Leclerc was recognised as one of the best Pears. Even now it is not so much grown as its great merit recommends it to be.

This excellent Pear was raised by M. Léon Leclerc, at Laval, in the department of Mayenne, France. It is not known exactly what was its parent, for M. Leclerc had sown seeds of St. Germain, Glou Morceau, and Easter Beurré; but judging from the appearances we should be inclined to suppose that it has taken its origin from the St. Germain. The tree first produced fruit in 1828; and in October, 1837, M. Leclerc sent specimens of the fruit through M. Vilmorin to a meeting of the Paris Horticultural Society, with the following note:—

"M. Van Mons has not only handsomely accepted the dedication of this Pear in declaring to me that he regards it in all respects of the first rank, but also, by a refinement of *politesse*, he has exacted that the name of the raiser who paid him this compliment should be placed in continuation with his own, for the sake of distinction. This is, then, the Pear Van Mons Léon Leclerc. This explanation was necessary to justify such a designation."

The fruit is of the largest size of dessert Pears, and is of an oblong shape, uneven and undulating in its outline. The skin is of a pale dull yellow colour, covered with russet dots and traces of russet. Eye open, with spreading segments, set in a very shallow basin. Stalk from 1 to 1¼ inch long, set on the end of the fruit with a slight depression, or obliquely without any depression. Flesh yellowish white, buttery and melting, very juicy, sugary, rich, and deliciously flavoured.

A dessert Pear of first-rate excellence, which ought to be grown in every collection. It ripens in the end of October and during November.

EARLY-FLOWERING TULIPS.

I am so fond of the beautiful tribe of spring flowers that I must be pardoned for this annual reference to them. I contend strongly and earnestly for their use in out-door spring gardening, because they are easily accessible, highly attractive, and deeply interesting. At this time I have in my own garden some eighty varieties of early single and double Tulips, of all shades of colour, from the pure white of White Pottebakker and Alida, down to the rich dark crimson of Couronne Pourpre, or the fine shade of violet-purple of Van der Neer; and many a neighbour and passer-by stops to look and admire, touched by those subtle forces we call "beauties of nature," that can and do powerfully influence the heart of humanity. These flowers commenced to bloom a month ago, and they will continue in beauty nearly to the end of May. With a few Snowdrops, Aconites, Crocus, and Scillas to "open the ball," what could be better adapted for spring gardening, seeing that the series would give an average of bloom extending over a period of three months? Let me here observe that such a result is attained if soil and situation be appropriate. My plot of ground is open to the influence of the sun till mid-day. The top soil was very shallow and clayey, resting indeed on a clay subsoil; and having been undisturbed for some

time previous to my taking possession of it, it was by no means in "high condition," as we say of a Derby favourite or a university crew.

I first trenched the ground to the depth of 18 inches, placing all the vegetable refuse I could get from it at the bottom of the trench. I then forked-in to the depth of 8 inches a coating of rich manure, and a few days previous to planting the bulbs I added 4 inches of road sand, which was slightly forked-in at the surface. When planting, the bulbs were also imbedded in road sand, and under these conditions, out of some four hundred bulbs there have been but very few failures indeed. The plants are all strong, and yet dwarf, and the flowers large and well-coloured. I have flowers of Keizer Kroon, Proserpine, White Pottebakker, Yellow Pottebakker, Van der Neer, Vermilion Brilliant, and others of the choicer kinds as fine as ever I saw them in pots, and this despite the cutting east wind that prevailed during the latter part of March and early in April, and that even now as I write is playing merciless sport with the tender shoots and the opening flowers in my little parterre, unchecked by any friendly shelter to ward off the unkindly attacks it persistently makes.

I may say that as yet the majority of the newer flowers I am growing are not yet in bloom, and this because planted late. What are already in bloom were to be seen a few weeks ago in the grand collections of spring-flowering bulbs exhibited by Mr. William Paul at the Royal Horticultural Gardens, South Kensington, and by Messrs. W. Cutbush & Son, of Highgate, at the Crystal Palace, Sydenham. Such a collection as Mr. W. Paul's was never before seen, and that during a season of which it was confidently predicted that "Hyacinths and Tulips would be below the average quality of the bloom." Unquestionably Mr. W. Paul has this season illustrated by his Hyacinths and Tulips especially a "cultivable process" of the highest value and fitness, and wherever he has exhibited he could say with Cæsar, "I came, I saw, I conquered." What superb Hyacinths were seen at South Kensington in the last week in March! Whoever saw such a Laurens Koster, D.B., not only distinguished by the unusual size and symmetry of spike, but having that peculiar, rich violet-blue hue scarcely displayed by any other Hyacinth? And then such a Lord Wellington, D.R., and King of the Blues, S.B., the premier flower of this division; or such a Garibaldi, S.R., or Madame Van der Hoop, S.W., and many others equally fine! I shall anticipate with more than usual interest the next meeting in 1867 between my two friends Messrs. Paul & Cutbush, for now they appear to be on a perfect level as skilful cultivators.

Looking over Mr. Paul's collection of Tulips, I saw that he had produced some new double flowers, very novel in colour and striking to the eye. Unfortunately they lack the substance of the old Tournesol, or Duke of York, or the later-flowering variety Couronne Impériale. These new flowers were of good size, and before they became fully expanded very pretty indeed. The following were the most noticeable:—

Salvator Rosa, ground colour pink, with flames of deep rose; pretty and novel. Albano, pale blush ground, feathered with bright pink, the ground colour so pale that one flower was pure white; very novel and pleasing. Murillo, very like Albano, indeed scarcely dissimilar enough to be considered as two varieties; growth and habit also identical. Lac Gris de Lin, glossy rosy puce, edged with whitish sulphur; novel and good. L'Unique, rosy carmine with nankeen base and edging; quite a Tournesol shape. La Barocque, rosy crimson base, heavily edged with white, but only semi-double. General Dann, semi-double only; scarlet crimson, feathered and flaked with gold; showy. Grenadier, a semi-double Brutus, with a little more depth of colour at the base of the flower; very showy. Konings Jurveel, glowing rosy crimson flaked with white; dwarf and showy.

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Flowers deficient in substance, as many of these are, should not be suffered to expand fully. A silken thread should be tied round each to preserve a globular form to the flowers. The march of improvement has belonged to the single rather than to the double flowers; but it would seem that efforts are now being made to improve the latter, an earnest of which Mr. Paul has instanced in the flowers mentioned above.

Quo.

REMARKS ON FRUIT TREE CULTURE.—No. 9.

Resuming the subject of the treatment of the Peach tree on walls, I would observe, that the process of disbudding, or the entire removal of certain shoots, should always take place when they are in a very young state—that is to say, before they have very much grown out. In this respect the operator must be guided by the season, because it often happens that a week's sun and mild temperature towards the end of March will start the buds into growth, to be succeeded by, perhaps, a month of easterly winds, and a cold, parching, low temperature, which will keep them in much the same state, so that they are better left on because of the partial shelter they will afford to those shoots which will eventually have to be left. When, however, through the advance of the season, a growing temperature may be reasonably calculated upon, the process should commence at once, otherwise much strength is needlessly wasted, because every shoot takes a portion of the nourishment sent up by the roots, and the more the superfluous shoots are allowed to absorb, the worse it is for the permanent ones.

The operation is of itself a most important one, and its objects should be well understood and carefully studied. When this is the case, no indiscriminate or haphazard performance will satisfy the careful operator. Many persons remove the shoots by a backward stroke with the finger and thumb; but I consider it always best to use a small and keen-edged knife, and at the first going-over to remove all the foreright shoots, or such as are likely to project outwards from the wall; the next time, which will be after an interval of a week or ten days, to thin out the remaining shoots, so as to leave them equidistant along the branch—say about 3 inches apart; and, after another interval, to go over them again, and select the shoots which are to be left to grow on—say one at or near to the bottom of the shoot, and the other at the extremity. By following this principle out with each shoot, there will always be a sufficient supply of bearing wood kept up to furnish the tree. The remainder of the young shoots must then be stopped at a point which will leave at least three well-developed leaves. If the tree is very vigorous four may be left, because it is probable that the two extreme buds will break again, and after a time these must be again stopped short, and the same process continued all through the summer and autumn, as long as they show any signs of breaking into growth, always being careful to retain the healthy leaves left on at the first pinching-back, because on their being carefully retained depends the formation of fruit-buds for spurs.

In the meantime, the permanent and unstopped shoots will require to be trained-in to the wall as they advance in growth; and, as in healthy and vigorous trees a number of them will always be found breaking into a strong lateral growth at the extremities, it will be necessary towards the end of August to shorten them back to the lowest lateral, which must then be trained on as a leader. In older trees which have become partially exhausted of the vigour which characterises their youth, this tendency to the production of laterals on the young shoots is very greatly diminished; but, nevertheless, it is a good

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state of growth to aim at, both because it is indicative of unabated strength, and, also, because it affords so many more chances of keeping the trees well up to the mark as regards being furnished with fruitful wood. During the remainder of the season attention to nailing-in the permanent shoots and stopping all the late growths is all that will be required as regards the manipulation of the branches.

During the time the above operations are in progress, there are other matters on which their successful application greatly depends, and these must receive careful attention and be carried on simultaneously. The first is the condition of the roots, because upon their being properly encouraged depends that healthy state of growth which enables the operator to calculate upon success. As I am now alluding more particularly to young trees, I will presume that care has been taken to make the borders well, both as regards drainage and a suitable compost, so that for a few years at least, there will be no fear of there being a deficiency of food, and the principal care will be to keep the surface of the soil loosened so as to obtain the full benefit of the sun's rays. The surface may also be slightly mulched in very hot and dry weather for the retention of moisture. At the same time, in very dry weather merely mulching will not be sufficient, for as the Peach requires copious supplies of water, the necessary quantity should be furnished whenever there is reason to apprehend a deficiency. Also, as saline matter appears to be peculiarly agreeable to the Peach, I always throw in a few handsful of salt in proportion to the quantity of water.

With this attention to root-moisture, must also be coupled that of keeping down the ravages of the insect tribe, which often interfere very much with the healthy development of the foliage. For this purpose there is nothing so effectual as frequent applications of soft water from a garden engine, or one of the improved hydropults, which throw a continuous stream. If this is attended to frequently it will act as an entire preventive; but if not, and the insects do obtain the mastery, pure water will scarcely suffice, and some of the many applications which are recommended for the purpose may be used. I prefer tobacco, or a weak solution of Gishurst compound, but none of them must be left on very long without being washed off again by syringing with clean water, because I am convinced that whatever is sufficiently strong to kill insects, will also to a certain extent injure the young foliage, as well as interfere with the action of the stomates on that which is further developed; therefore, I say, Do not let any noxious mixtures remain too long on the foliage, and by all means try whether the necessity for using them cannot be avoided by a constant attention to syringing with pure water. Prevention in the long run is less troublesome than cure, and far more satisfactory in its results.

Redleaf. JOHN COX.

INARCHING THE FIG TREE TO HASTEN BEARING.

HAVING seen the Castle Kennedy Fig, now being sent out by Messrs. Lawson & Sons, of Edinburgh and London, I would advise every Fig-grower to obtain it, for I consider it a very great acquisition; and knowing how anxious every fruit-grower is to see the first production of any new or highly esteemed fruit, I will direct attention to a method which I once adopted in order to hasten bearing, not that there is anything new in it, but as a means of saving time.

I had received cuttings of a celebrated large Fig from Lord Digby, and in the following season I elevated one of the small pot plants upon a bracket of

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wood, so as to bring it in contact with a similar branch of a large and well-established Brown Ischia Fig tree, which I had in a house, and I then inarched the young tree upon the branch of the old one. I should mention that I allowed the old tree to be nearly in leaf before I operated. I allowed the young plant to remain till well united to the tree on which it was inarched, and when its wood began to get firm, I severed it below the point of union with the old tree. I had several fruit in the following season, and the variety inarched on the established tree has grown freely and fruited well every year since.

Dalmeny Park. WILLIAM MELVILLE.

A HOMILY ON GLASS STRUCTURES.

THERE are few subjects connected with horticulture that require at the present day a larger amount of careful study on the part of the practical gardener than the erection, ventilation, and heating of garden structures for the cultivation of plants, fruit, and vegetables. Whilst legislation has of late years tended to lower the price of the materials of which these houses are constructed, mechanical science has also been brought to bear very successfully upon their design and mode of heating, and their possession has therefore been brought within the reach of persons of moderate means; and, besides, the peculiar variability of our climate at all periods of the year has rendered it absolutely necessary that every well-appointed garden should be supplied with structures of this class. With their aid the gardener is enabled to surmount all difficulties as to time, place, or climate, and to produce under ordinary circumstances in abundance the most choice productions, either to delight the eye or the palate.

Without, however, pursuing these preliminary considerations further, we will first glance at the principles on which houses for horticultural purposes should be constructed. Here it may be remarked that, looking at the general character of the houses that have come under my notice, there does not seem to be any great partiality shown for one description of design in preference to another; and it is very generally found that the houses have been built to accommodate themselves to situations, instead of the latter having been accommodated to the former.

Whether it be for stoves, greenhouses, vineries or orchard-houses, the span roof, and lean-to will be found equally suitable, if both be supplied with sufficient heating power where that is required; but if a handsome and ornamental structure is wanted, a span roof is preferable for this object. This kind of house is also undoubtedly the best adapted for the growth of handsome and well-formed specimen plants; and few objects attract the eye and senses so forcibly as a well managed span-roofed vinery with trained fruit trees on each side of the walks, the whole being laden with rich, fragrant, and luscious fruit.

It is not now my intention to discuss the relative merits of the curved or plain-slope system; it is enough to know that in all modern erections the old-fashioned close bars and sliding sashes are entirely ignored—that rafters few and far between, with the intermediate spaces well glazed with good clear glass, so as to admit all the light possible, are now the rule; the only drawback to this improvement, however, being that when a square of glass is broken, as it will be sometimes, it is a large instead of a small one, and the cost to replace it is necessarily greater. The best mode of preventing such accidents would be, if possible, to make the glass less brittle; but pending such an improvement in its manufacture, we must content ourselves with being careful to break as little as possible.

Leaving the subject of construction, I will now just glance at that of ventilation, the proper arrangement for which is of the first importance in the construction of houses. The great objects of ventilation are, first, a pure and healthy atmosphere, and, secondly, an equable temperature. To secure these objects there seems to be no plan so suitable as that at present most generally in use, and which is also most in accordance with our knowledge of atmospheric action; and that consists in providing for the admission of external air at the lower part of the house, and for its escape at the upper part after it has done its work, and has supplied to vegetable life those great requisites that pure air alone can give. In all correct modes of ventilation the possibility of a continuous draught will be avoided, and if the proportion of top air given is about one-fourth of that at the bottom there is no doubt that this object will be perfectly secured. It is not possible to lay down any rule of ventilation that will suit all descriptions of plants and fruits alike, for all gardeners know that whilst some plants will exist and be healthy in a freely ventilated and dry atmosphere, others require a humid and confined one; but in every case the practical knowledge of the gardener will prove his safest and surest guide. The application to bottom ventilation of the crank principle which admits of a simultaneous and instant command over the amount of air, is a great improvement; and when this system is applied to houses both at top and bottom, it seems to be as nearly as possible the most perfect mode of ventilating glass structures.

With regard to modes of heating, it does not appear necessary to discuss any other than that most generally adopted, in which hot water is made the medium of conveying heat. Brick flues have done good service, but are going out of use. Hot water will perform whatever is required of it, provided only there be plenty of boiler power and sufficient piping for its free circulation. The quantity of piping necessary for heating houses must depend on their size, and the purposes they are intended to serve. Forcing-houses and stoves necessarily require a greater proportion of heating power than greenhouses, or those intended for plants of a half-hardy character; but I think I shall not be far wrong if I put the quantity of four-inch piping necessary to heat a thousand cubic feet of air in an ordinary greenhouse at about 60 feet; but to heat the same quantity in a stove or forcing-house not less than 150 feet would be required.

With regard to the relative merits of the various kinds of boilers now in use, I could hardly express any decided opinion. The most important features of any boiler are cheapness, durability, great heating power, and the least possible consumption of fuel to produce the greatest effect. The question of setting boilers in brickwork or not may also be left open; still my predilections at present are in favour of a boiler being permanently set, encasing it with a considerable body of brickwork, for I believe that by this means the rapid loss of heat that otherwise takes place when the fire becomes low is arrested, and that the warmth is retained for a considerably longer period.

Maybush, Shirley, Southampton. ALEXANDER DEAN.

PENTSTEMONS.

THESE are among the most showy and charming of herbaceous plants, and well deserve a place in every collection. Some kinds are truly herbaceous, dying down to the ground annually; whilst others are more or less shrubby. They thrive and flourish well in any good garden soil, with a little peat or leaf soil mixed with it. Some of the kinds are well adapted for ribbon-borders, and all for mixed borders.

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The strictly herbaceous kinds are easily increased by dividing the roots; but the shrubby kinds are best propagated by cuttings, taken off yearly in summer and put into sandy soil under hand-glasses in a shady situation. When rooted they should be potted off singly into small pots, and should be well established and hardened before winter. As soon as they begin to grow after having been potted off, they should be set out in some open place where they will have free exposure; they should be watered when necessary, and the shoots should be kept regularly stopped. By this treatment they will be good plants before the autumn. On the approach of frost they should be placed in a cold frame or pit, where they must be kept tolerably dry and free from damp. They should be fully exposed all day in fine weather. The lights should always be kept on during the night, and these in ordinary weather will be sufficient protection to the plants; but in severe frosts the additional shelter of mats should be afforded. The plants may be either shifted in March into larger pots, by which means they will be very strong for planting-out in the beginning of May, or they may remain in the same pots until the end of April or beginning of May, when they should be planted-out in the open border. They will, in general, begin to come into flower about the end of June.

Pentstemons seed very freely, and plants are easily raised from seed. Many fine varieties have been thus obtained of late years. The seeds should be sown in pans in March and put into a little heat. As soon as the seedlings are large enough to handle, they should be pricked out into pans about an inch apart; they should be kept rather close until they begin to grow afresh, when air should be admitted freely. About the middle of May they should be planted-out into beds at about a foot or 15 inches apart. When they flower the best should be marked for propagating by cuttings, and at the end of the season the inferior ones, if not wanted for shrubbery borders, should be thrown away.

Most of the varieties are so good that it is difficult to give a selection without omitting some equally good. The following may be depended on:—

Adolphe Weick, bright coloured; the best of its class.
Adrienne Boppi, very pale pink.
Alphonse Karr, maroon; white throat.
Charles Klein, carmine red; white throat, striped.
Compactum nanum, deep crimson; dwarf, for bedding.
Dr. Hogg, scarlet; white throat; fine.
George Bruant, pure white, margined lilac.
Ida, bright rose.
John Salter, white tube; lilac sepal, pencilled.
Joan of Arc, fine deep carmine; throat veined purple.
Jules Thierry, very deep scarlet; fine.
Lord Clyde, bright crimson red.
Louis Van Houtte, deep carmine; white throat.
Madame Thibaut, best crimson; dwarf and free.
Marie Marguerite, white, tipped with rose.
Modèle, bright lilac.
Raphael, dark violet.
Scarlet Gem, scarlet; fine.
Victor Hugo, bright carmine.
William Bull, violet.

M. S.

BEDDING PELARGONIUMS.

The busy season for "bedding-out" has again come round. Ere the close of the present month (May), the greater part of the many thousands of bedding plants, that were during the winter months crammed into every available nook and corner of our glass structures, will have been transferred to the flower garden. A few years ago, if the beds were tolerably well filled up by the early part of July it was thought to be pretty good management even in favourable seasons; but in bad and unfavourable years it was often a difficult matter to get good masses of bloom before the end of July, owing to the uncertainty attending the growth of the kind of plants then used for bedding-purposes. Now, however, the case is very different. The great number of varieties of bedding Pelargoniums make us independent of seasons, and furnish materials

for immediate effect. As Mr. W. Paul remarks in the January Number of the FLORIST AND POMOLOGIST (page 6), "The certainty with which they accomplish the work allotted to them, their freedom and continuity of bloom, the gorgeous masses of colour which they produce, and their comparative independence of the changes of the weather, place them without rivals in their own peculiar walk."

Most of the stronger-growing kinds of the plain and zonate-leaved Pelargoniums, which are grown principally for their flowers, require different treatment from the weaker-growing kinds of the variegated sections. Nothing takes so much from the effect of flower gardens as to see some beds badly filled, whilst others near by are, as may sometimes be seen, masses of luxuriant growth. It occurs to me that a few remarks on the subject may not be altogether unacceptable at the present season to the younger portion of the readers of this periodical.

The last season was a remarkable one, the like of which may not again occur for some years. It was, on the whole, highly favourable for bedding Pelargoniums. The long continuance of fine, warm, sunshiny weather was all that could be desired for Pelargoniums, particularly those of the plain and zonate-leaved sections. The coming season may be very different. If dull, wet weather should prevail for any length of time, the stronger-growing kinds of the plain and zonate-leaved sections will run too much into growth and foliage, especially if the beds are highly enriched—an error into which the inexperienced sometimes fall. The method I adopt with them is simply this: The beds, which contain ordinary garden soil of a sandy nature, are dug from 12 to 14 inches deep before planting. I then have some leaf soil or some very rotten dung spread over the surface. When the plants are being planted this is put into the holes around the balls with the fingers and trowel. The plants make fresh roots in this immediately, and soon start into a nice healthy growth, Later in the season, as they strike deeper, the roots get into the poor soil, and a profusion of flowers instead of rank growth is the result. With good strong plants of the very vigorous kinds it is a good plan to plunge them in the pots, taking care that there is not a great depth of soil at bottom for the roots to strike into. When masses of flowers are the principal object aimed at, everything tending to late growth should be guarded against. Young plants, when put into highly enriched soil, run too much into growth towards the end of the season, even in fine weather.

Nearly the whole of the variegated varieties require to be planted in beds of highly-enriched soil of good depth. When I say highly-enriched soil, I do not mean that the bed should contain a mass of strong unfermented dung—far from it; the soil should consist of one-half good turfy loam, one-fourth part peat or leaf soil, and one-fourth part very rotten manure, the whole well mixed up together with a good sprinkling of river sand. The bottom of the beds should be thoroughly drained, and the depth of the above compost should be from 16 to 20 inches. If the plants are well rooted—and this is a very material point to be attended to—they may be planted-out towards the end of the month. If the weather be dry after they are planted, they will require watering a little, until they begin to root freely into the fresh soil. After this they will take care of themselves if left alone.

There were numerous complaints last season about variegated Pelargoniums not growing freely, particularly some of the golden-leaved varieties. I believe the greater part of the failures arose through planting badly-rooted plants in shallow beds of poor soil. In visiting a place last season, where I first saw Sunset and Mrs. Pollock after they were let out, I was very much surprised not to find Sunset bedded-out, especially as Mrs. Pollock was very largely

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used. On inquiring the cause I was informed that Sunset was a bad grower and difficult to increase. I need hardly say my own experience of Sunset is the very opposite. I merely mention this case to show how often things are condemned for want of a little common fair play. There was no doubt in my mind that coddling and too much nursing had killed beautiful Sunset. Had the plants been put into beds of the compost recommended above, they would have grown and furnished abundance of cuttings, which strike as freely as common scarlets, if put into pots of very sandy soil and plunged in any warm south border from the middle of July to the middle of August.

Cloth of Gold also grows nearly as freely as Tom Thumb when planted in good soil; but as, when it grows very freely, and especially towards the end of the season, it loses much of its golden colour, it is advisable not to plant it in too rich soil. The best plan of managing is to get good large plants for planting, and then to put them in pretty closely in beds of ordinary soil. They will not grow very freely in such beds, but will retain their fine golden colour all through the season. Beginners will often fall into mistakes which men of practical experience never commit. Attention to the foregoing very brief details at the present planting season will, I feel sure, produce very satisfactory results.

Stourton. M. Saul.

THE INFLUENCE OF THE SUN ON PLANTS.

My object at present is to notice the effects of the sun on plants; for without the sun's rays all the gardener's art, knowledge, and care must be fruitless. Perhaps for me or any one else to try to explain how plants absorb the rays of light may be equally so. However, I may hazard an opinion that plants are affected by sunbeams through the pores of the leaves, and perhaps those of the tender shoots; and also that these beams are stored up, both in the roots and branches, and perform the chief work in the growth of these. Little do some think that the inflammable part of the fire is only sunbeams let loose, which were collected or imbibed by the trees of the antediluvian forests—so wisely have all things been ordered for the benefit of man.

Neither animals nor plants can live long healthy without the influence of the sun. I am aware of what has been said respecting animals having been found in the dark depths of the sea, and likewise of some kinds of fishes without eyes, in dark waters in caverns. The existence of these seems at variance with the maxim that the sun gives "life to all living," for they may be healthy and may enjoy life, though always in darkness, whereas other animals are not so. Kean, the American voyager, mentions that his dogs became blind during the long dark winter in the arctic regions; but that might be the effects of disease, caused by the absence of the influence of the sun, for blind animals may be said to be always in darkness, yet have good health while surrounded with light and air. The same may in some measure be said of many kinds of tender plants in winter. Some plants, of course, are adapted to grow in the shade, while others require the full sun. The diversity of their habits may be owing to the difference of the pores of the leaves, which exhale matters not required by the plant, and inhale nutriment, more or less, as they are affected by the light. Those acquainted with the early forcing of flowers and fruit know full well that a few hours of sunshine are worth more than as many days of dull weather, especially to Melons and Cucumbers: therefore I think the too common plan of shading them is wrong, except to a small extent when their roots have been disturbed, or when the plants are weak in consequence of the absence of sunshine. In both cases, the sap-vessels in the leaves do not receive a sufficient supply of juices from the roots, and it is hot sunshine that burns or scorches

them. This may have led to the common plan of shading both Melons and Cucumbers during summer; but by long experience I have found that they do best without it, and so do many other kinds of plants kept under glass. In fact glass, however clear, tends in some measure to shade or deprive plants of their proper nutriment through the agency of sunbeams.

Cossey Park. J. WIGHTON.

SOMETHING ABOUT STOCKS.

MY neighbour Dalton is enthusiastic about Stocks. They are his hobby, and he rides it hard. He winters his Brompton and Queen Stocks better than any one else in our neighbourhood; and when those of others have been killed by the wet, or whatever else it is that plays such havoc among them, he points to his own plants, healthy and luxuriant, and chuckles over his better fortune.

I think the great secret of his success lies in the observance of two rules; the first is the provision of good drainage for the border on which he plants them, for he contends that too much wet at the roots is the cause of half the deaths in the neighbourhood (he alludes to the deaths of Stocks, good reader); and, secondly, when he transplants from his seed-bed to the border on which they are to flower, he is careful in the extreme (I think), not to disturb the roots in the slightest degree. In fact, in this last lies, in his opinion, the secret of his success. You would never argue him out of it, and of course it is useless to try. I cannot succeed as he does, and I tried to be as careful as he is, and I gave up the attempt in despair, thinking that nature had not intended me for the special work of growing winter Stocks. His Brompton and Queen Stocks just now look as satisfactory as the most fastidious could desire to see them.

Dalton does'nt believe in "bedding stuff," and I confess when I look on his charming Stocks during the summer months, my faith in some of the aspects of our modern systems of bedding-out becomes a little shaken. His large-flowering German Ten Weeks, his Giant Ten Weeks, his Intermediate, his Giant Pyramidal, and his Brompton Stocks, to him far transcend my Lobelias, Geraniums, Calceolarias, Cerastiums, &c., and he goes further, and thinks a spike from one of his scarlet Pyramidal Stocks much finer and much more attractive than the choicest bright colours of my pet Gladioli, and he carries the votes of the greater part of the neighbourhood. I pity his want of taste; he, my infatuation. I give a good round sum for some of my choicer kinds of Gladioli; his most choice Stocks cost him but little, as he saves his own seed. I get no surplus bulbs to dispose of; he has really extensive transactions with his Stock seeds, and gets a good price indeed for them.

Just now he is great in Intermediates, both scarlet and white, the latter being, however, a rather taller grower. His scarlet flowers are the envy of our neighbourhood, and would be greedily sought after in Covent Garden Market. He sows his seeds in the end of August and early in September, and winters his plants in a cold frame when potted. He is careful to have rich, but very fresh soil, and he is a great advocate for the use of a fine yellow loam that prevails in his neighbourhood. He has an original plan of his own in his method of cultivation, and I think many Stock-growers would be disposed to question the value of his system on theoretical grounds; but practically it produces the most desirable results. While there is always noticeable among his flowers a very large per-centage of double flowers, the single ones are carefully tended for the sake of the rich harvest they bring him. The seeds when ready for sale are always large and plump, and seem suggestive of the vigorous plants they always produce.

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Of the other varieties of Stocks he produces so finely, I am most wedded to the Pyramidal section, especially the two colours—violet and scarlet. The former is indeed violet, not the washy lilac shade one often sees; his colour is a deep violet purple, with a distinct shade of bright blue. Any pale-coloured plants are withdrawn, and consigned to the refuse heap as soon as they betray their presence. They are grown in a moderately rich, but good, holding soil, and sometimes are treated to a little manure water. In dry weather they are copiously watered, and as this is invariably an inevitable necessity, they are planted in slightly sunken drills in order that the water may not be wasted.

I have called attention to this old-fashioned, yet thoroughly good and domestic flower, because it has receded into oblivion as far as the horticultural press is concerned. New things, that too often mean worthless things, crowd them out, or else eccentric lucubrations which move one to pity most heartily both writer and readers. I both wish and try to move with the times, but I cannot keep pace with a great deal that passes current as modern horticulture. I must, therefore, lag behind; but I press closely to my heart many of the old-fashioned flowers that had a charm for me in my youth, and have not robbed me of it in my age, and foremost among these stands that thoroughly English and popular flower that heads this paper.

ADAM.

DACTYLIS GLOMERATA VARIEGATA.

I ANTICIPATE that this elegant liliputian Grass will be extensively employed for edging-purposes when more plentiful. Whether in beds or ribbon-borders it cannot fail to be admired, being graceful in the extreme; moreover, it is of easy culture, and will succeed out of doors without protection in ordinary seasons. The least portion of the roots will grow readily at any season. I pot separately in pots of the smallest size, using ordinary soil, and the pieces strike at once, soon filling the pots with roots. I then divide again until I secure a sufficient stock.

This Grass, I believe, will be at home in the moist districts of Ireland and Scotland, where it will luxuriate in a far greater degree than we are in the habit of seeing it in the south.

Wrotham Park, Barnet. JOHN EDLINGTON.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

THOSE of our London friends who have occasion to visit South Kensington will have observed how rapidly is being raised the building, or rather tent, in which the Exhibition is to be held. A "monster tent," indeed, it is to be; it must be so, when it is remembered that space is computed for the circulation of 15,000 visitors, independent of mounds, and banks, and borders of plants, &c., that will be arranged within the tent. All other flower shows that have preceded it in Great Britain dwindle into insignificance when compared with the huge proportions of this one. The Executive have their hands pretty well full by this time, and as the time for holding the Exhibition draws closer, the tax on their time and energies will be considerably increased.

The engagements of the week may be briefly summed up thus:—Tuesday, the 22nd, Opening Day of the Exhibition and grand Banquet at the Guildhall, at which the Right Hon. The Lord Mayor of London will preside, and which will be served to a very distinguished company on a scale of great magnifi-

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cence. The guests will be limited to six hundred, in order that the comfort of each shall be insured. On Wednesday morning the Botanical Congress will open in the Raphael Cartoon-room, at South Kensington Museum, under the presidency of that distinguished European botanist, M. Alphonse De Candolle, of Geneva. A large number of foreign botanists and horticulturists will be present, and a number of papers have already been furnished to the Congress Secretary. On the evening of Wednesday a Conversazione will be held at the South Kensington Museum, which, together with the Raphael Cartoon-room, has been liberally and kindly placed at the disposal of the Executive Committee by Her Majesty's Government. The suitability of the place is so apparent that it needs no commendation, and the numberless articles of interest stored there, together with the picture-galleries, &c., will be valuable auxiliaries to such a gathering.

On Thursday, the 24th, a Horticultural Dinner on a very extensive scale will take place at St. Martin's Hall. This, though not promoted by the Executive Committee of the International Horticultural Exhibition, has their entire sanction, and is regarded by them as a valuable adjunct to their engagements. This dinner is promoted in order to give an opportunity for those of the nurserymen, gardeners, and amateurs from the provinces and in the metropolis to meet together at the "festive board." The movement promises to be a great success, is being extensively patronised, and will be carried out in a very spirited manner. The Committee of Management will shortly publish their programme.

On Friday morning there will be another Sitting of Congress, and probably it will be continued on Saturday. The Conversazione which was to have been held on the evening of Friday has been definitively abandoned, owing to the multiplicity of engagements already and in course of being contracted.

Besides the special invitations that have been issued to distinguished foreigners allied to botany and horticulture, a great number of other invitations have been issued, a large proportion of which have been accepted. Delegates will also be present from several of the continental Governments, some of which have already named the gentlemen who will represent them.

That the weather will be propitious is the earnest desire of all who look forward with interest to this great meeting, and also that the movement should be a pecuniary success is not the less earnestly hoped for.

On the opposite page is a ground plan and cross-section of the Exhibition tent, which is 30 feet in height, 563 feet in length, and 293 feet in width, thus covering a superficies of more than 3¾ acres. Of this area about 55,000 square feet will be devoted to plants arranged on turf-banks and mounds, and 60,000 square feet for promenades, which, as stated above, will allow space for 15,000 visitors at one time. For the Orchids and other tender plants a division 500 feet in length and 40 in width has been set apart, and every precaution has been taken not only to insure a sufficiently high temperature whatever the weather may prove, but also to secure that which is not less essential to their safety, a due amount of ventilation. The beautiful design, according to which the ground has been laid out, is due to Mr. Gibson, the Superintendent of Battersea Park, assisted by his son, Mr. John Gibson, jun., and the whole of the works have been carried out under his active supervision, and this gratuitously given, and pursued with that energy and perseverance which he brings to bear on all which he undertakes. Viewed merely in outline, the graceful curves of the design have an excellent effect; what, then, will this be when those mounds and valleys are covered with the most choice of all that is beautiful in flower, and leaf, and fruit, gathered together not only from every corner of our own country, but from all parts of Europe as well?

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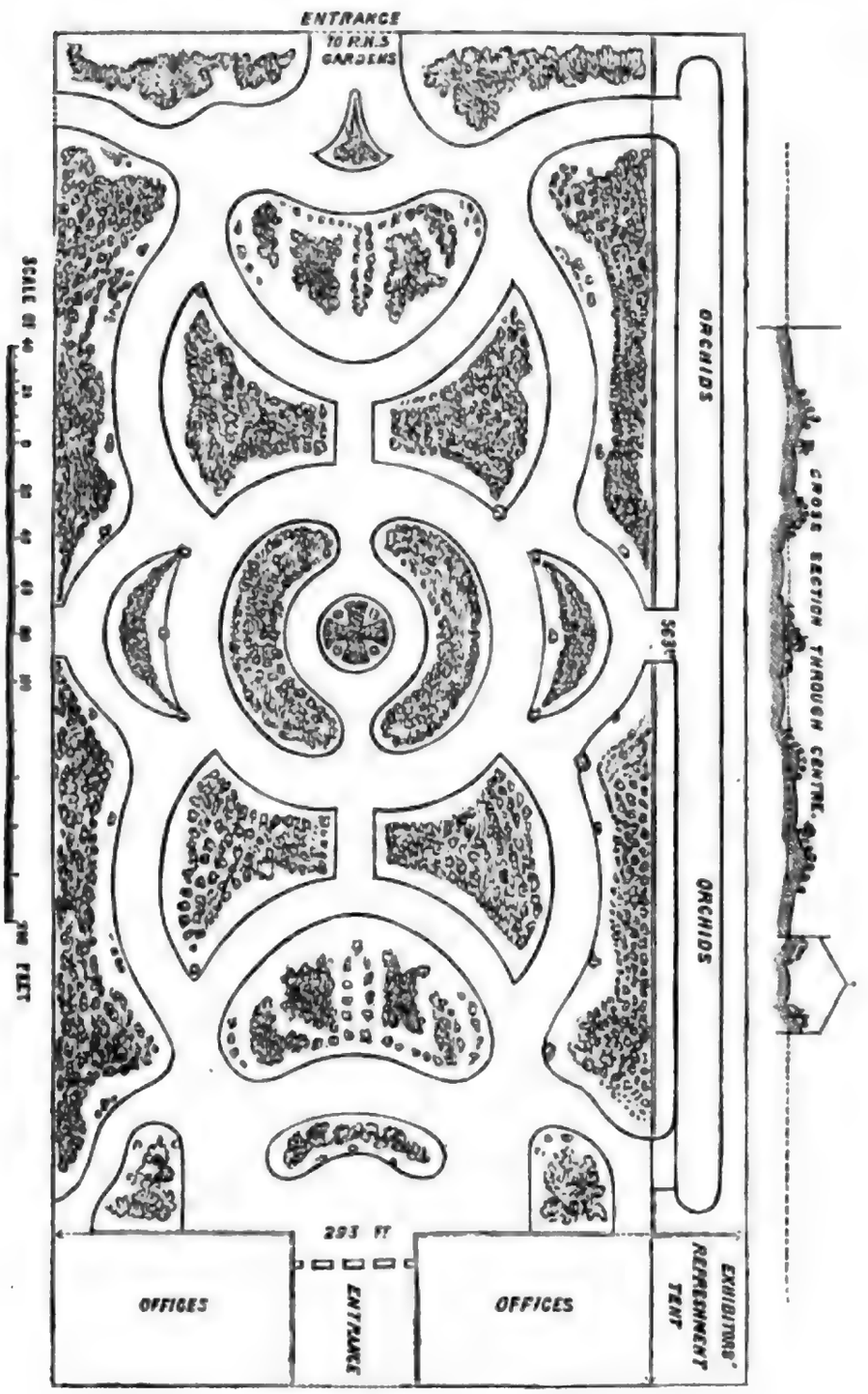
GROUND PLAN AND CROSS SECTION OF THE INTERNATIONAL HORTICULTURAL EXHIBITION TENT.



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JOTTINGS AT EXHIBITIONS.

At a recent meeting of the Floral Committee some very handsome varieties of Sparaxis were produced by Messrs. Veitch & Sons, of Chelsea. They had been received by them from the Continent under the name of Ixia sp., and had been simply grown in a cold frame. They are of great beauty, and should they become distributed, will be great favourites, as they deserve to be. At the same meeting was shown, by Mr. Watson, of St. Albans, one of the tricoloured varieties of variegated Geraniums, named Miss Watson, the leaves being green, deeply edged with yellow, and having a striking zone of crimson. It appeared a very desirable variety.

At a recent Saturday Show a collection of Apples and Pears in a wonderful state of preservation, was sent by Mr. Rivers, of Sawbridgeworth. As showing they are "good keepers" at least, a list of the varieties may be advantageously appended. Apples: Cockle Pippin, Betty Geeson, Forge, Belle d'Angers, Lamb Abbey Pearmain, Mela Carla, Rhode Island Greening, Baxter's Pearmain, Reinette Diel, Newtown Pippin, Dominiska, and Pearson's Plate. Of Pears: Colmar Van Mons, Morel, Madame Millet, Easter Beurré, Beurré Brétonneau, Beurré Perreau, Bellissime d'Hiver, and Bezi Mai.

On the third Saturday in April there were exhibited at South Kensington, by Mr. William Miller, of Combe Abbey Gardens, Coventry, four bunches of Lady Downe's Grape, which were cut from the Vine on the 9th of April, having been hanging ripe since the 1st of September last, thus being preserved for a space of nearly eight months. Many of the berries were plump and full, and the colour good. With them were also shown some bunches of Foster's White Seedling from pot-grown plants, which had fruited in a Pine-stove in a continuous high temperature. The Vines were placed in the stove about the 1st of December, having thus fruited in a little over four months.

R. D.

LIFTING FRUIT TREES.

Although the practice of removing fruit trees with the view of limiting growth and inducing fruitfulness is not new, having been advocated by Mr. Rivers for many years past, and extensively adopted, yet the following system detailed by Mr. George Lee, of Clevedon, near Bristol, in the last Part of the "Journal of the Royal Horticultural Society," differs materially from that recommended by Mr. Rivers. The account of it given in that publication is of considerable interest as showing how even large fruit trees may be removed with safety and advantage, and we therefore extract the particulars, with but slight abridgement, merely adding that Mr. Lee has frequently given proofs of his success as a cultivator, in the fine samples of fruits which he has more than once exhibited at the Royal Horticultural Society's Shows.

"The soil is cleared off in a circle round the tree, 5, 6, 8, or more feet in diameter (according to the height or size of the tree), down to the roots; a trench is then dug sufficiently deep, three-fourths or more round, leaving only about two or three roots on one side undisturbed. The trench is dug round with a spade to cut off any roots which may have gone beyond, and the soil is worked from between the roots into the trench with a fork (this should be done with some care not to bruise or cripple the roots), and thrown out of the trench with a spade as it becomes full. In this way you get with comparative ease at any roots which may have gone perpendicularly, and are able to dig sufficiently deep to get them up long enough to turn horizontally, which is of great importance,

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for if these roots are cut short off they are almost certain except they are very large ones, to strike perpendicularly again. The soil thus cleared out and the roots all free (except those which have been left undisturbed), the tree is turned over on the side on which the roots are left.

"The next time they are lifted, the roots thus left are cut off, and the tree is turned the opposite way. Thus, if the roots are left on the west side this time, they will be left on the east next, and so on alternately.

"I find on lifting a large tree, which has not been previously lifted, that some regard should be paid to the prevailing strong winds. Thus if the prevailing strong winds are from the west, the roots should be left the first time of lifting on the west side; but it does not much matter if we begin with small trees, supposing the trees are in single rows, running north and south; the best way then would be to turn them east and west. But suppose there are double, or treble, or more rows, and they run north and south, then it will be necessary to turn them at some other angle, so that the tops and branches may be as free as possible from coming in contact with other trees, say N.E. or S.W.

"The greater part of my trees, which have been lifted several times, would, if taken entirely out of the ground, stand on the surface without any support, and it would take quite a strong breeze to upset them, and, I think, the labour is amply compensated by the superior crop of fruit, both as to quality and quantity. Perhaps I ought to speak more strongly than this, for I consider the crop pays several times over the expenses. But for my experience in lifting (for which I am indebted to Mr. Rivers; for although my method differs materially from his, yet it has been suggested by it, and but for his I should never have thought of mine)—my trees, more than 2000 in number, would have been almost valueless, from my having to clear off my present garden for building-purposes; whereas now I might sell many of them for from 10*s*. to 40*s*. each.

"I will now first give the dimensions of a few trees of my own working, which have been practised upon from their second or third year.

"I begin early in the season and continue till the spring, as I lift many hundreds every season; but I begin with the ripest first, generally Cherries, always choosing the mildest, but especially moderately dry weather (I find the trees suffer if lifted in very wet weather), and in filling-in, I never tread down the soil, and rarely have one blow over, not more than one in eighty or ninety.

"I begin on very young trees, say the second year after planting, and I generally plant maiden or sometimes two-year-old trees; and if we begin so early there are no large roots taking a perpendicular direction. Great care is taken in pruning the roots while the tree is on its side and laying them carefully in, keeping them as directly out from the tree as possible, so as eventually to form a circle, and the soil is carefully worked over and levelled with a fork. The depth of the hole must be regulated as well as the width by the size or height of the tree; but none of the roots, even of large trees, are above 15 or 16 inches deep, and of those which have been commenced with young (although they may now be large) not more than about 10 or 12 inches. They do not require any support in any one season to prevent their getting blown over—a circumstance which I consider of great importance. If trees are begun with when young and lifted carefully, they soon have an abundance of roots, and their lifting is very little check to them, except in making wood, and even this can be regulated at pleasure.

"In the following list of trees which I have lifted successfully, it will be observed that, though the process was commenced when they were very young, their growth was not much hindered. The height is given from the surface of the soil. The spread is taken at about 3 or 4 feet from the ground. The age

is reckoned from the time of working the stocks, which are what are termed free stocks, being generally three years old at the time of working.

"I perhaps ought to say that I find Quince and Paradise stocks lift quite as well as Crab or Pear, but it is not so with Cerasus mahaleb. This I do not find lift at all well in any soil. After the trees get large, every bruise or scratch in the roots becomes attacked by a fungus, which always produces bad health and frequently death. The following are—

"Pyramid Pears:—Doyenné d'Eté, age ten years, height 19 feet, spread 8 feet, diameter of stem near the ground 6 inches. Broom Park, age nine years, height 15 feet, spread 9 feet, diameter of stem 6 inches. Urbaniste, age nine years, height 16 feet, spread 7 feet, diameter of stem 4 inches. Doyenné Robin, age nine years, height 17 feet, spread 6 feet, diameter 4 inches. Soldat d'Esperen, age nine years, height 13 feet, spread 5 feet, diameter 4 inches. Beurré Diel, age ten years, height 14 feet, spread 8 feet, diameter 5 inches. Doyenné Boussoch, age eight years, height 13 feet, spread 7 feet, diameter 5½ inches.

"Apples:—Gravenstein, age nine years, height 13 feet, spread 6 feet, diameter 6 inches. Golden Pearmain, age eight years, height 13 feet, spread 6 feet, diameter 4 inches. Mannington's Pearmain, age eight years, height 11 feet, spread 6 feet, diameter 4 inches. Irish Peach, age nine years, height 12 feet, spread 7 feet, diameter 4 inches. Rymer, age nine years, height 11 feet, spread 5 feet, diameter 3¾ inches. Sturmer Pippin, age nine years, height 12 feet, spread 5 feet, diameter 3½ inches. Waltham Abbey Seedling, age nine years, height 11 feet, spread 7 feet, diameter 5 inches. Keswick Codlin, age nine years, height 10 feet, spread 6 feet, diameter 4 inches.

"I will now give a list of a few trees removed last season to a new garden about three miles distant, *and doing well.*

"Jargonelle, age ten years, height 17 feet, spread 10 feet, diameter 6 inches. Gansel's Bergamot, age ten years, height 18 feet, spread 8 feet, diameter 5 inches. Urbaniste, age nine years, height 14 feet, spread 9 feet, diameter 4½ inches. Thompson's, age ten years, height 15 feet, spread 5 feet, diameter 4 inches. Passans de Portugal, age ten years, height 16 feet, spread 7 feet, diameter 4½ inches. Louise Bonne of Jersey, age ten years, height 16 feet, spread 6 feet, diameter 5½ inches. Shobden Court, age ten years, height 17 feet, spread 7 feet, diameter 5 inches. Gravenstein, age nine years, height 12 feet, spread 8 feet, diameter 6 inches. All these have been very much pruned so as to bring them into shape.

"The other Apples removed last season cannot be strictly called pyramids, they are more properly bush trees; many varieties of Apples I find rather difficult to keep leaders to, so as to form pyramids. I will, lastly, give a few lifted last season, to be relifted this, for removal next to the new garden. These are some which have not been regularly lifted, and therefore require two liftings to insure their doing really well after removal; they are all standards, with stems from 4 to 6 feet. They were not commenced with young. Orange Bergamot, age twenty-five years, height from ground 25 feet, spread 20 feet, diameter 1 foot. Catillac, age fifteen years, height from ground 25 feet, spread 15 feet, diameter 10½ inches. Glou Morceau, age eighteen years, height from ground 23 feet, spread 13 feet, diameter 10 inches. Broom Park, age sixteen years, height from ground 19 feet, spread 14 feet, diameter 9 inches. Knight's Monarch, age sixteen years, height from ground 17 feet, spread 13 feet, diameter 7 inches. Eyewood, age sixteen years, height from ground 23 feet, spread 13 feet, diameter 8 inches; with many others sixteen to eighteen years old with large spreading heads.

"If it is necessary to lift a large tree which has not been previously lifted,

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a somewhat wider circle must be taken, and, perhaps, one-third of the roots, or nearly so, be left undisturbed. The turning over will be a little difficult, but not so much so if the soil is cleared some little distance further on that side, so as to allow the roots more space to bend; and as the roots will most likely be grown very irregularly, to keep them properly spread and in their places it will be best to have some strong fork pegs well pointed, inserted with a small iron bar, and afterwards driven firmly in with a wooden mallet. These will not only keep the roots in their places, but will help to secure the tree from blowing over. But, in addition to these, very large trees will require some other support to keep them quite safe. I use long forked poles, about three or four of which are inserted at angles: but, of course, none will be needed on the opposite side to that on which the roots are left. But as these would look very unsightly on a lawn or any conspicuous place, tar ropes may be fastened, say at two-thirds the height of the tree, previously placing a good bandage round it to save it from being wounded. The ropes will, of course, be fastened at angles to sufficiently strong pegs, and by means of such ropes, the trees may be far more easily lowered and raised upright again.

"As I have practised this mode of tree-lifting for many years, and on many hundreds of trees, I can confidently recommend it as a most successful method, and I know that no one will regret giving it a trial if it is done carefully. I, perhaps, ought to say a few more words about Pears on Quinces, Apples on Paradise stocks, and Cherries on Cerasus mahaleb. As to their producing fruit earlier, there can be no question. I find many Cherries bear even a much better crop than on the free stock; but, as I said before, they do not lift so well when they become large as they do on the free stocks, and Quince stocks do not do in very sandy soil. I will give the dimensions of a few Pears on Quince stocks. Gratioli of Jersey, age ten years, height 12 feet, spread 5 feet, diameter 3 inches. Conseiller de la Cour, age ten years, height 13 feet, spread 8 feet, diameter 4½ inches. (This is a most handsome tree.) Beurré Hardy, age ten years, height 14 feet, spread 5 feet, diameter 4½ inches. Beurré Bretonneau, age ten years, height 12 feet, spread 5 feet, diameter 4 inches. Pius IX., age ten years, height 12 feet, spread 5 feet, diameter 3 inches. Prince Albert, age ten years, height 13 feet, spread 6 feet, diameter 4 inches. Nouveau Poiteau, age ten years, height 13 feet, spread 6 feet, diameter 3½ inches.

"I find Apples on Paradise stocks bear well; but they are difficult to keep upright if lifted when the trees get large, from the extreme smallness of the roots.

"I will, in conclusion state a few particulars in which my method of tree-lifting differs from Mr. Rivers's, yet not so much in the mode of operation as in the results. Mr. Rivers's plan is intended for small gardens where a large variety may be grown in a small space, mine for those of trees of any dimensions, however large; Mr. Rivers's partly as a source of amusement, mine more as a source of profit; Mr. Rivers's only for the fruit garden, mine may be applied to ornamental trees and shrubs, previous to their removal by waiting two years, and with almost the certainty of success. How much has been written about the removal of large Hollies, and other large trees and shrubs, both as to manner and the particular time, too; and what a cumbrous affair it has been in removing many hundredweights, and sometimes tons of soil in the operation, and then, after all, a frequent risk as to their growing; whereas, in this way, there is no occasion to remove any larger proportion of soil than in the case of a tree or shrub 2 feet high. In this way they are almost certain to grow, at least I have only lost one out of many hundreds, and that was more through carelessness than default in the method.

"What valuable trees are, after many years' growth, found to be in the

wrong place; what a desire that they should occupy a more conspicuous or a more favourable place; but what a risk in their removal! Consequently, they are allowed to remain where they are, rather than run the risk of sacrificing them; but by treating them as I have mentioned in reference to large trees, not previously lifted, there is great prospect of success.

"I am a market gardener and very fond of fruit-growing, and, of course, want to get something by it—that is, make it pay, and I find that my attention to lifting, as I have described, answers admirably, both as to quantity and quality. I beg to refer you to *The Journal of Horticulture*, vol. iii., page 635, and the FLORIST AND POMOLOGIST, as also to a few remarks in the 'Report of the International Show,' in *The Journal of Horticulture;* but both the quantity and quality, by careful attention to thinning, are improved. I often cut two-thirds and sometimes a very much larger proportion.

"I have not given the sizes of Plums or Cherries; but they are quite as large in proportion."

VERBENAS.

THE following selection from a considerable number of varieties grown at Chiswick is given in a late Number of the "Proceedings" of the Royal Horticultural Society. The most approved sorts are indicated by an asterisk (*), and the next grade by an obelisk (†):—

Annie * (Cooling).—A variety of novel character. The flowers white, striately margined with carmine after the style of Striata perfecta.

Ariosto Improved *.—A fine, showy, and effective mulberry-purple.

Bedding Gem (Wills).—Bright ruby; free.

Captain Semmes (Wills).—Much like Lady Binning, but with a somewhat darker shade around the eye.

Claret Queen * (Wills).—Of free habit, the flowers of a bright velvety claret colour.

Crimson Cushion (Wills).—Very dwarf and desirable in habit, but out of flower when examined.

Danesbury Pet * (Parsons).—A showy variety of dwarf free habit, the flowers of a shaded orange-scarlet, deeper towards the centre, and relieved by a white eye.

Géant des Batailles *.—A good sort, well known as one of the most useful of the crimson group.

General Simpson *.—A good sort, well known as one of the best in its class.

Lady Binning † (Wills).—Free bloomer, and close habit; flowers crimson, with a straw-coloured eye. Approved as a bedding variety.

Lara * (Wills).—A variety of close habit, with deep pinkish-rose flowers.

Little Pet (Wills).—Too spreading in habit, having a much-cut leaf, and deep rosy flowers.

Maonetti Erecta * (Wills).—A very close and dwarf-growing variety of distinct habit, with cut leaves, and deep rosy-lilac flowers very abundantly produced.

Merry Maid * (Wills).—A large showy carmine rose, having a purple tinge, and producing fine trusses of bloom. It is also a good variety for pot culture.

Mrs. Dobree * (Turner).—A free dwarf-growing variety of excellent habit; the flowers deep rose, with a tinge of crimson on first opening.

Mrs. Lincoln * (Wills).—A variety of erect dense habit, with deep clear rose-coloured flowers, extremely well adapted for bedding.

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Princess Victoria † (Wills).—A new and distinct style of Verbena, very dwarf and close in habit, having cut leaves, and dark rose-coloured flowers.

Rosy Circle † (Wills).—Close-habited and free-flowering, the flowers of a deep purplish rose, with a straw-coloured eye.

Snowball (Turner).—A blush, of very fine shape.

Spark * (Turner).—Flowers crimson, with straw-coloured eye. This comes very near Lady Binning, but is somewhat lighter in colour. Both are useful as bedding sorts.

Velvet Cushion † (Wills).—A free-blooming dwarf, purple rose.

Some other varieties, which were much affected by the hot dry season, were not in a condition to be reported on.

OPEN-AIR CULTURE OF LILIUM GIGANTEUM.

The hardiness and endurance of this noble Lily are certainly much greater than generally admitted. It has now flowered without protection in several places in this northern division of the kingdom, and, I think, may therefore be classed as a hardy bulb. In one instance a number of seedlings, in consequence of want of room, were turned out in the open ground, and allowed to remain undisturbed; some of these have flowered and ripened seed, thus proving that the climate of Scotland is sufficient from the earliest stage of the plant's growth to do all that is required. We have here a Lilium giganteum which was planted in the spring of 1861, and which produced last summer a flower-stem 7 feet 9 inches in height, with eleven flowers upon it. Several pods of seed were also formed.

The strength, vigour, and stately appearance of this Lily in the open air in the earliest stages of its growth are very conspicuous and interesting, and still more so is its rapid growth in the early months of spring. The effect, too, when planted out of doors is much more pleasing than when the plant is grown under glass. This is the second instance of its flowering in Morayshire; the first occurred in the garden of a lady amateur in the cold summer of 1860.

With these facts before us, I think there need be no hesitation in recommending Lilium giganteum as a hardy border plant, and if put into a warm sheltered situation there can be little doubt of its succeeding.

Gordon Castle. J. Webster.

OUR CONTEMPORARIES.

L'Horticulteur Français for February, has for its plate a representation of *Erythrina ornata*, a new variety of Coral Tree, raised by M. Bellanger. It is a shrub not exceeding 2 feet in height, and will even flower when 8 inches high. The racemes are long, and closely set with large dark vermilion flowers, with a reddish crimson keel. This is stated to be a very early-flowering variety, blooming a fortnight or three weeks before the other Erythrinas, and continuing in bloom till autumn. Cuttings inserted in March or April frequently flower in the end of July; and it is also said to be a good pot plant, the buds never dropping. *Madame Bellanger* is another dwarf free-flowering variety obtained by the same raiser; the flowers are described as being of a velvety, dark reddish crimson, with a darker keel. The same publication for March contains a plate of *Huernia Thureti*, one of a genus of succulent plants separated from that of Stapelia. The plant has numerous branches, generally four-sided, of a lively glaucous green, and bearing flowers on the lower parts.

These are five-lobed, yellow, streaked with carmine, and without that offensive odour which the flowers of many of the Stapelias exhale. The flowers are produced abundantly in the end of August and during the following two months. It requires a greenhouse temperature, free loamy soil mixed with leaf mould, and copious waterings during the season of growth.

Flore des Serres (Nos. 179 and 180) contains plates of *Phalænopsis sumatrana*, *P. rosea*, and *Sarmienta repens*, a Gesneraceous plant, a native of Chili, where it is found climbing on the bark of trees and on moss-covered rocks. The flowers are scarlet, resembling those of Mitraria coccinea, but of less size, and borne singly or in pairs on long peduncles. Other plates are representations of *Ipomæa Horsfalliæ*, *Cypripedium Pearcei*, referred by Professor Reichenbach to Selenipedium; and *Hydrangea japonica rosalba*, with what are familiarly known as the flowers in two states, snow white as produced in winter, or white suffused with rose, and shaded with bright red, as produced in summer. *Cratægus oxyacantha Gumpperi bicolor*, with white flowers broadly edged with rose, is the subject of the next plate. It is, apparently, a very ornamental variety of the Hawthorn, and is stated to be of German origin. *Odontoglossum Bluntii* follows. This is stated by Mr. Bateman to be not specifically distinct from O. Alexandræ, whilst Professor Reichenbach maintains the contrary. However this may be, O. Bluntii is the better of the two, and as both were described about the same time Mr. Bateman claims for Bluntii the name of Alexandræ in the event of their merely proving to be varieties of one species. *Evagil Pippin*, a pretty golden yellow Apple, of good flavour; *Azalea indica Roi des Beautés*, rose, edged with white; *Calathea*, or *Maranta*, *Veitchii*, and *Podophyllum Emodi* form the subjects of the remaining plates. There is also a portrait of the late Dr. Lindley.

L'Illustration Horticole for January, February, and March, has plates of the following:—

Hyophorbe Verschaffelti, known in commerce as Areca Verschaffelti, a very handsome Palm, found in the Mauritius and Réunion, whence its seeds were sent to M. Verschaffelt, who first exhibited it in 1859, and subsequently at the Brussels Exhibition in 1864. His largest plant is now nearly 10 feet high, but it sustained a severe check from exposure during the exhibition, and a still larger plant died from that cause. The leaves are from 6 to 9 feet in length, and gracefully curving downwards, the leaflets are linear-lanceolate, from half an inch to 2 inches in breadth, according to their age, and from 18 inches to 2 feet in length, smooth, shining on both sides, with a raised whitish central nervure, and curve downwards towards their extremity. The common petiole is marked with a broad bright orange line extending throughout its length.

Hyophorbe amaricaulis (*Areca speciosa*), equally handsome with the preceding, but apparently not attaining so large a size; only young plants, however, have been observed. The leaves of the largest of these measure from 3 to 5 feet in length and about 2 feet in breadth; and the leaflets, which are smooth and shining on the upper side, are about 18 inches long, have a whitish central nervure and a very fine reddish line at their margin; on the under side are numerous chaffy scales. The leafstalks are broadly lined with rose on a brown ground.

Trichinium Manglesii, figured and described in our Volume for 1865.

Camellia Roma risorta, raised some years ago by M. Del-Grande, of Florence, but only recently sent out. The flowers are very large, bright rose, with numerous crimson streaks and lines, each petal lightly edged with white.

Bougainvillæa lateritia, reproduced from a plate in the "Floral Magazine" last year.

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Maranta splendida, discovered three or four years ago by M. Baraquin in the Province of Para, in Brazil, and by him sent to M. A. Verschaffelt, of Ghent. The leaves are of very dark shining green on the upper side, marked with broad oblong bands, pale green, or slightly tinged with yellow, and extending from the midrib towards the margin, which, however, they never quite reach. These bands vary in length and breadth, but are always broadly obtuse at their termination towards the margin. The under side is of a uniform violet purple. A fine addition to ornamental-foliaged plants, resembling Calathea Veitchii in its general character.

Bignonia argyreo-violascens.—A good representation of this pretty plant, which has been frequently exhibited at recent Shows.

Dieffenbachia gigantea.—A double plate, giving the foliage on a scale of nearly one-fourth the natural size at present attained. The largest plants in M. Verschaffelt's stoves have stems upwards of 4½ feet in height and a foot in circumference, with leaves from 2½ to 3 feet in length, and heads measuring from 7 to 9 feet round; and yet these are far from having acquired their full size. The leaves, and the leafstalks as well, being marked with numerous conspicuous white blotches, such plants must, as the editor remarks, have an admirable effect in a stove.

Comparettia coccinea, not by any means a new plant, having been described by Lindley in the "Botanical Register" many years ago, but still rare.

Camellia Clodia, supposed to be of Italian origin. Flowers very large, the petals imbricated, bright rose with a scarlet tinge, veined with rose, and having an occasional stripe of white.

The Floral Magazine for March has for its first plate *Sphacele cærulea*, a softwooded plant, belonging to the natural order Labiatæ, bearing numerous spikes of lavender-blue flowers in a warm greenhouse in winter. It is in the hands of Mr. Bull.

The second plate is a representation of *Nerine Fothergillii*, figured "not as a novelty, but as an interesting decorative plant, which ought to receive more attention than it has met with."

The third plate has for its subject *Maranta roseo-picta*, the leaves of which are "of a beautiful rich glossy green. The midrib is of a lovely rose colour, and two irregular bands of the same colour run up each side of the leaf, midway between the midrib and edge." It was discovered in October, 1864, in the regions of the High Amazon, betweeen Loreta and Iquitos, by Mr. Wallis, the collector for M. Linden, of Brussels.

The fourth plate is a group of *Pompon Chrysanthemums*, consisting of *Fairy Nymph*, a full-sized white; *Rose d'Amour*, clear rose, the base of the "petals" white; and *Torfrida*, bright golden amber, very full and rich in colour. They are sent out by Mr. Salter.

The April Number of the same publication contains plates of

Epiphyllum truncatum tricolor or *elegans* (we are left in doubt which is its name, for the letter-press gives both), one of the numerous continental varieties, having orange scarlet and purple flowers.

Pelargonium peltatum elegans, an Ivy-leaved variety, with delicate pink flowers, described as being larger than in the ordinary varieties of the same section, and forming a better truss. It is in the hands of Messrs. E. G. Henderson.

Maranta illustris, discovered at the same time as Maranta roseo-picta, and in the same district of Ecuador. The leaves are of a bright green, marked by transverse bands of a deeper shade of green, sometimes reaching down to the midrib, which is of a pale rose. Two irregular zigzag bands of yellowish white extend on each side of the leaf from the base to near the apex. The under side of the leaf is of a uniform purplish maroon.

Primula kermesina plena and *Queen of England*, the former a large double flower of a rosy carmine tint, and the latter, also double, white tinged with blush, are two varieties of Messrs. Windebank & Kingsbury's fine strain.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society.—The second spring Show took place on the 12th of April, and was rather an extensive display for so early in the season. Azaleas and Roses constituted the principal features, but there was also a very respectable array of stove and greenhouse plants, contributed by Messrs. Lee, of Hammersmith, F. & A. Smith, Mr. Fairbairn, Sion, and Mr. Bartlett, Hammersmith, while Mr. Bull, as usual, brought forward a numerous collection of new plants. The Azaleas from Mr. Turner, who was first in every class for that flower in which he could compete, were remarkably fine pyramidal plants, exhibiting less of that stiffness of training and crinoline character so much complained of a year or two ago, and they were, moreover, beautiful masses of bloom. The varieties which he exhibited were Louise Von Baden, Queen Victoria, Belle Gantoise, Perryana, Magnificans, Duc de Nassau, Eulalie Van Geert, Flower of the Day, Prince Jerome, Brilliant, Iveryana, Magnifica flore pleno, Magnet, and a plant called Union, being Etoile de Gand and Variegata superba on the same root. A fine plant of Criterion, about 5 feet high, also from Mr. Turner, received the first prize as a single specimen. The plants from Messrs. Lane, who took the second honours, were smaller than those from Mr. Turner, but likewise in beautiful bloom: and from the same firm came also a fine collection, very even in size and bloom. George Eyles and Fire King, two new varieties, were shown by Mr. Turner; the flowers of these were very large, orange scarlet, with the upper petals lightly spotted with crimson in the one, and heavily in the other; both are likely to prove acquisitions. Of Roses, fine groups were exhibited by Mr. Turner and Mr. W. Paul; but the chief interest in this part of the exhibition centered in the new Roses of 1865 and 1866. Of these, numerous collections came from Mr. W. Paul, Messrs. Paul and Son, and Mr. Turner, who took positions in the prize list in the order in which they are named. Among the varieties seen to most advantage were Glory of Waltham, John Keynes, Dr. Lindley, Dr. Andry, Xavier Olibo, Duchesse de Caylus, Rushton Radclyffe, Maréchal Niel, Mademoiselle Amélie Halphen, Madame Moreau, and Duke of Wellington. Several collections of Cinerarias were produced, but their appearance was not striking, and some excellent Calceolarias came from Mr. James. Auriculas were confined to a fine set of twelve, shown by Mr. Turner, the same number exhibited by Mr. James, and good Alpines from Mr. Turner. Other subjects chiefly consisted of a number of finely-bloomed dwarf Rhododendrons in small pots, contributed by Messrs. Lane; a new variety of Clianthus Dampieri, in which the flowers have a white keel tipped with scarlet, Genista prostrata, compact in growth and bearing bright yellow flowers, and variegated Japanese Ivy, all three from Messrs. E. G. Henderson; and a variegated-leaved Kerria japonica, better known as Corchorus, from Mr. Turner, and which is likely to be a useful addition to hardy variegated plants. T. Luscombe, Esq., of Combe Royal, sent a basket of Oranges, Lemons, and other fruit of the Citrus family, grown in that part of Devonshire with merely the protection of reed-frames in winter; also Camellias and Sikkim Rhododendrons bloomed in the open air. Mr. Bull exhibited among other novelties the beautiful Maranta splendida noticed in another page, Bignonia argyræa violascens, and Psychotria macrocephala with large heads of white flowers produced from amidst the leaves.

The fortnightly meetings continue to be well attended, and are frequently the means of directing attention to matters that might otherwise escape notice. Thus at the meeting of the 3rd the Rev. M. J. Berkeley made some remarks on Truffles, and, after recounting various attempts which had been unsuccessfully made to cultivate those refractory but delicious fungi, it was stated that the experiment would be tried at Chiswick this year, and he hoped that though the season was rather far advanced some result might be obtained, either in the shape of a crop or a further insight into the conditions likely to insure success. The great desideratum was to grow Truffles by spawn in the same way as the Mushroom. At a subsequent meeting—that held on the 17th—Mr. Berkeley again returned to the subject of edible fungi, and stated that an attempt would be made at Chiswick to cultivate these as well. Their value as an article of food was insisted upon, and particularly the fact of their containing a considerable amount of nitrogen, which forms so important a nutritive constituent in the flesh of animals. Afterwards Mr. Bateman, who was to have given a lecture on Dendrobium MacCarthiæ, the Rainy-month flower of Ceylon, had the flower arrived, made some interesting remarks on the Orchids, particularly directing attention to a magnificent spike of Odontoglossum Pescatorei shown by Mr. Rucker, who, when the meeting terminated, kindly allowed it to be distri-

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buted among the ladies. Two species of Callixene were then noticed as charming plants for cool greenhouses, where they will not only carpet the ground, but clothe the naked stems of plants. At the two meetings twenty-eight new members were elected, and three societies admitted into union.

Royal Botanic Society.—During the past month two Shows have taken place at the Regent's Park. That of April 7th was very gay, for it was then that the fine Azaleas of Mr. Turner and Messrs. Lane first made their appearance, and there was besides a plentiful display of stove and greenhouse plants, and Ferns, Begonias, and other fine-foliaged plants, enlivened by Cinerarias, Cyclamens, &c. A new Cineraria, exhibited by Messrs. F. & A. Smith, and called Perfection, gained a first-class certificate. It is large and showy, violet purple, with a narrow ring of crimson towards the base of the ray florets, with a narrow ring of white round the disc. The second Show during the month, and the last of the spring Shows, was held on the 21st; but with the exception of the Roses from Mr. Turner and Messrs. Paul & Son, which were very fine, and Pelargoniums in excellent bloom shown by Mr. Wiggins, gardener to Mr. Beck, of Isleworth, it did not present any remarkable feature.

Dioscorea batatas.—M. D'Auvers stated in a recent Number of the "Revue Horticole," that he had been very successful in the culture of this Dioscorea, having obtained roots about a yard in length, a result which he ascribed to the use of phosphate of lime. He then recommended Dioscorea roots eaten raw as a preventive and cure for scurvy; but in the last Number of the same publication appears another letter from him, stating that he has found that the roots contain an acrid principle, which might cause bad results. He says that last year in preparing Dioscorea flour for his own use, on agitating the water in which the roots had been grated, he and his assistant experienced in their hands and arms a sensation similar to that produced by the sting of a nettle, accompanied by redness of the skin. The same thing occurred every time he stirred the fresh-grated pulp, and he attributes this result to the presence of some acrid principle which disappears in cooking. Dioscorea flour, if better known, would, he believes, become an important article of food.

Truffles.—Some notion may be obtained of the extent to which the trade in Truffles is carried in France, when we read that in the market of Apt alone 1600 kilogrammes (about 3500 lbs.) are exposed for sale every week in the height of the season, and that the lowest estimate of the quantity sold during the winter amounts to 15,000 kilogrammes (nearly 33,000 lbs. weight). According to another account, the Department of Vaucluse yields from 29,500 to 30,009 kilogrammes (57,100 to 66,158 lbs.) annually. The vast quantity that must therefore be procured and sold in all the French provinces where they grow, and the large revenue arising therefrom, should be a great inducement to the proprietors of suitable localities to attempt their cultivation in England.—C. E. Broome, *Journal of Royal Horticultural Society*.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Orchids.—These superb plants are now making active growth; keep the air of the house humid by damping the interior frequently each day; shade must be given. Examine plants growing on blocks and in baskets, and soak them every two or three days; syringe them daily in the interval. Plants requiring to be re-dressed or potted should be attended to. Remove plants in bloom to a cooler house, to prolong their beauty.

GREENHOUSE.

To make room for choice plants in bloom, as Geraniums, Calceolarias, Cinerarias, &c., several comparatively hardy plants may now be transferred to a temporary shelter. Myrtles, many Acacias, Rhododendrons, Aloes, &c., may be trusted to frames, or any odd house or shed for a few weeks, to make room for the above more showy plants. Heaths and hardwooded plants must now have abundance of air; small plants will grow nicely now in frames. Shade on bright days. *Camellias* are now forming wood; more heat will be requisite, which may be obtained by closing the house earlier in the day. Shade and syringe daily; water plants not potted this spring with soot or clear manure water. When the young shoots are full-grown give less shade by degrees, and more air, to aid the formation of bloom-buds. *Cinerarias*, when on the decline should be placed in frames or pits facing the north. When seed is not required, the sooner they are cut down the better, that good early cuttings may be procured. *Pelargoniums.*—The shading should now be generally up, and used according to the brightness of the weather; there should be no green fly to keep under. The bees must be kept out of the house with netting. The closest attention must be observed in watering. Plants for July-blooming should now be tied out; give them plenty of room, and keep them as cool as possible.

CONSERVATORY.

Chinese Azaleas, Cinerarias, and Pelargoniums slightly forced, will make a great display just now, assisted by forced Roses an

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a few yellow Calceolarias. Keep up a good stock of Orange trees, Daphnes, and scented-leaved plants, for their agreeable fragrance. The temperature should now be kept down by shading and admitting more air; this will benefit Heaths, Epacrises, and New Holland plants, brought in for decoration.

PITS AND FRAMES.

Directly these are cleared for planting out, fill them with Balsams and other annuals, to occupy the greenhouse during the summer. Newly pricked-off annuals for turning out may likewise be sheltered for a week or two in them, to get hold of the pots before planting.

FORCING.

To Grapes changing colour admit plenty of air; and if growing in pots, or in-door borders, reduce the water supplied to the roots; stop and train the shoots of succession vineries, and thin the bunches as soon as the berries are formed. Fires will be necessary for late Grapes, during the time they are in bloom, to insure their setting well. Vines at this stage should be kept as dry as possible; but, both before and after the blooming period, use plenty of water in each house, sprinkling the floors, walls, &c., often each day. Tie in the shoots of Peach-trees as they advance; thin the fruit by degrees. Do not allow many to stand over till after stoning, or you may lose more than you want; keep down red spider by the application of clean water, and the fly by timely fumigations.

KITCHEN GARDEN.

Weeds by this time there ought to be none; and therefore hoeing and loosening the surface round growing plants will only be necessary, drawing a little earth to Cabbages, Cauliflowers, Peas, &c., as you proceed. Sow Dwarf Kidney Beans, Longpod and Green Windsor Beans, and Peas for succession; also Spinach, Radishes, Turnips, Onions for salads, and some Endive for an early crop. Make a good sowing of Scarlet Runners in a warm situation, either to be sticked like Peas, or to be kept dwarf by topping when about a foot high. In the latter case it is well to spread some litter over the ground in order to keep the pods clean; this, however, need not be done till after they have formed. Prick out Cabbages, Brussels Sprouts, Savoys, and Celery, and plant out Vegetable Marrows in rich ground. Thin Beet, Carrots, and seed-beds generally when these are at all crowded.

HARDY FRUIT.

Disbudding the more choice wall trees, as Peaches, Apricots, &c., should take place gradually, reserving such shoots as will be required to afford the crop for next season. Thinning the young fruit when too thick should be done at two or three times, taking off a few each time, till the final number for swelling off only remain.

FLOWER GARDEN AND SHRUBBERY.

Where planting has been deferred till late spring, mulching must be resorted to, and the newly planted trees, particularly evergreens, damped overhead every afternoon, until they commence growing, when watering at the roots will suffice in dry weather. Supposing the beds for the summer-flowering plants to have been duly prepared with the proper compost necessary for each kind of plant, the turning-out of the hardiest may be proceeded with, especially if there is much to do, as it will give more time for the others. Pentstemons, Dianthuses, Phloxes, and many half-hardy, biennial, and perennial plants, should first be transferred to the open beds; then may follow Verbenas, Fuchsias, and similar things; reserving Geraniums, Dahlias, Salvias, Heliotropes, &c., to the last. *Annuals.*—Thin out those up, leaving three, four, or more in each patch, according to their size. Sow towards the end of the month for autumn-blooming. Plant out Stocks, Asters, &c., sown under glass; rich soil suits them best.

FLORISTS' FLOWERS.

Auriculas.—As soon as out of bloom, remove them from the stage to a cool north border, standing them on a bed of coal ashes. A temporary framework should be erected, that lights may be placed over them in very wet weather, but leaving them open at the sides on all occasions. Watering should be strictly attended to, and they will make fine growth by the time they require repotting, which should be done towards autumn. *Carnations and Picotees.*—Look well and vigilantly after aphides, which must be kept under. The plants should now be permanently staked. The side shoots of strong plants will often start for bloom; these should be stopped, but not too early, or it will cause other layers to start for bloom. *Dahlias.*—Repot without loss of time, using good rich soil, and harden the plants gradually before planting out. Neither an early nor a large plant is absolutely necessary to insure good blooms; on the contrary, a late-struck plant is preferable to one that has become stunted in its growth. Seedlings must have plenty of room, light, and air, or they will become drawn, and will suffer when they are planted out. *Pansies.*—Seedlings should be often and carefully examined, marking the promising varieties when they are in true character. Propagation should be attended to this month, the cuttings being kind and healthy; small side shoots are best. Autumn-saved seed should now be sown, to bloom next autumn. Never sow seed to come in bloom during the summer months, or it is difficult to ascertain what the seedlings really are. *Pinks.*—Thin out blooming shoots to three or four on a plant, according to its strength and the known habit of the flower; also disbud the principal shoots as soon as the side buds can be removed; water liberally, using weak liquid manure once a-week. *Tulips.*—Shading during the day, and keeping them exposed during the morning and evening, is all that can be done this month.

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1 Gem. 2. King of the Crimsons.

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ALPINE AURICULAS.

WITH AN ILLUSTRATION.

THE class of Alpine Auriculas has not hitherto been highly estimated by florists; but the beautiful varieties which Mr. Turner has within the last year or two made public will probably gain for them a higher position and greater consideration. Certainly they will be appreciated by the flower-loving public.

The two varieties we now figure give a good idea of the highly ornamental and varied character of these Alpine Auriculas, which are of the easiest culture, and perfectly hardy so far as the temperature of our winters is concerned. They only require shelter from excessive rain. They are among the most beautiful of spring flowers.

M.

OUR FRUIT CROPS.

AFTER a very cold and unfavourable spring the prospects of a fruit crop are very cheering. With, perhaps, the exception of Peach trees, the wood of most trees got well ripened last season, and, in consequence, there has been a great deal of blossom this season. Apricot trees were very full of bloom, and, owing to the mildness of the winter, some of the early blooms began to expand in February, but were destroyed by the snow and frost that set in in the beginning of March. The very cold weather that continued throughout March retarded the opening of the flowers, and was unfavourable to their setting; but, notwithstanding, the crop is a very fair one. Peach and Nectarine trees were denuded of their foliage early in September by the numbers of aphides that infested them. The wood and buds, especially the strong wood, did not in consequence get properly matured. In general, there was plenty of bloom on the trees, but much of it fell off without setting, being, no doubt, imperfect from the unripened state of the wood. Some of the trees here which had the best ripened wood have set their blossom well; whilst others, with stronger wood, and which were full of bloom, have set very few fruit.

I fear Peaches and Nectarines on the open walls will not be a full crop. The trees have broken well, and are making fine healthy young shoots. Pears will be a very heavy crop in general. Cherries and Plums also will be good crops. The Apple trees have been very beautiful, and I think the crop will be a plentiful one. Gooseberries, Currants, and Raspberries will bear very plentiful crops. Crops of all kinds are backward, owing to the very dull, cold, unfavourable weather we have had for many weeks.

The Strawberry crops, from present appearances, will, I believe, prove to be very deficient. The plants did not recover from the long continuance of hot dry weather we had last summer. Some sorts suffered much more than others. Sir Harry promises to be the fullest crop here this season, as it was last. I have some young plants of British Queen that promise to be pretty good; the old plantations look only indifferent. Keens' Seedling will be much better than last season. Oscar looks well. Of Trollope's Victoria the plants are fine, but are not showing much bloom. Sir Charles Napier looks tolerably well; the plants are very good, but the trusses are not very plentiful. Jucunda was good last year, and promises to be equally good this season. The plants are fine, and the trusses plentiful. It seems to be a good strong grower, of hardy habit. Should it do as well as its present appearance seems to warrant, I will feel inclined to increase my stock of it. Eltons do very well here; I never saw them better anywhere else. I had a fine crop of them last year, though not

quite so abundant as in previous seasons. Eleanor is not a free bearer here, though I get some very fine fruit. From what I hear, I fear the crop of Strawberries will be a light one; but if the Strawberry crop be light, with an abundance of most other kinds of fruit the deficiency will not so much matter.

Stourton. M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 10.

THE necessary winter pruning may be performed at any time during the dormant season, or, in fact, as soon as the leaves are all off, and will simply consist in shortening the shoots, more or less, according to their strength, taking 18 inches as a maximum length for strong ones, and the weaker in proportion. It is good practice then to take out all the old shreds and nails, and while the trees are loose to inject forcibly some strong clear lime water all over the walls at the back of the trees, for the purpose of expelling noxious insects from the crevices and nail-holes. The trees will be better left loose until early in March, when they should be dressed with composition and again trained to the walls with new nails and shreds.

This practice of leaving the trees loose all the winter is intended for the purpose of keeping down any undue excitement which may be caused by the prevalence of bright sunny days, which frequently occur during that season. The Peach is constitutionally liable to become very early excited into growth, and I have seen great injury result from the occurrence of severe frost in spring after a mild winter, through buds being killed and fractures occurring in the bark of the young wood, caused, probably, by the contraction and expansion consequent upon the ascending sap being frozen. If, therefore, the trees are left loose from the walls, they are to a certain degree removed from the influence of the radiation of heat from the walls, and thus the period of excitement is considerably retarded, greatly to the prospective advantage of the trees.

My observations have hitherto been confined principally to the treatment necessary to be followed out in the case of young trees; but as they advance in age and growth a number of other influences begin to work upon them, and the treatment will have to be modified in accordance therewith. But I think it will be best that I should follow out the old adage of "line upon line, precept upon precept," and proceed to the details of practice at the commencement of the second year's growth from the permanent planting.

If the trees, previous to that final planting, were passed through a good preparation elsewhere, so as to lay the foundation, as it were, of good well-balanced trees, we may, in such a case, reasonably conclude that in the second year we may look for a fair proportion of fruit, according to the strength of the tree. Very strong and vigorous young trees may be permitted to carry more fruit than those which are weaker or even of only an average fruit-bearing strength, and for this reason—because the production of fruit is calculated to exhaust the energies of the trees very much, whilst the production of wood and foliage is calculated, where there is feeding material below and room enough above, to increase the strength and vigour of the trees in an almost indefinite degree. It is the perfect comprehension of these two opposing influences which enables the practitioner to work them against each other, to the mutual benefit of both trees and manager. I repeat, then, that very vigorous and luxuriant young trees may be permitted to carry a much greater weight of fruit proportionally than others which apparently need encouragement to keep up a tolerable growth.

It is not always, however, that, with the greatest care, strong vigorous trees

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can be induced to bring their fruit to the stoning point. There are cases in which, although covered with bloom, and thus to all appearance well set, the vigour of the trees is so great that the woody growth appears to absorb all the sap, and the fruit drops off abortive. It is passing strange that there is a natural tendency in fruit to fasten itself and fatten, as it were, upon the weaker branches. Such is, however, invariably the case, and the knowledge of the fact is useful in practice; for if the strong trees before alluded to can be induced to carry fruit, it will operate beneficially by weakening the process of the formation of woody growth; but if not, then the quickest remedy will be root-pruning early in October. In anticipation of that operation a more considerable development of woody growth may be allowed, in order that the operator may have a good choice of fruit-bearing wood in the next season; for it is not to be understood that the operation of root-pruning is calculated to render a tree barren the following season—on the contrary, the check appears to be just that threatening of life which induces the strong shoots to carry their fruit. Of course, the operation must be performed at the right time, particularly as in some cases it may be best to lift the tree entirely and replant it—a practice which may be followed out with even large full-grown trees with very great advantage, whether for the purpose of checking luxuriance by root-pruning, or that of renovating the borders by the removal of old compost and supplying new.

The routine of treatment of the young trees during the second year will not materially differ from that before advised for the first year. As, however, the circumference to which the outer branches extend becomes increased, timely provision must be made for keeping it well furnished, by training out an extra shoot from the under side of the leading branches. They may not always be required when the tree is re-trained, but it is always best to have a few shoots in reserve, for in this uncertain climate great injury frequently results from accidental causes over which we have no control. These extra shoots need not be entirely removed if not required, but should be shortened to about five or six buds, and one shoot selected and trained from each the following season. They will contribute to preserve the vitality of the central part of the tree, and give the operator a chance of thinning out the extremities and keeping his trees at home.

Redleaf. JOHN COX.

PLEROMA ELEGANS.

THIS splendid Melastomad is chiefly interesting from the fact that it produces abundance of its deep blue-purple flowers on comparatively small plants, and may be managed without a plant-stove, which most of its neighbours require. The fact that the large flowers are produced most freely on the points of last year's shoots furnishes the key-note to its culture. The next thing essential to success is that it will not thrive if kept in a plant-stove, nor yet will it thrive if kept in a cool greenhouse. In the one case it will get straggling, and the wood will not ripen well enough to bloom freely; and in the other the plant will assume a starved appearance, and become brown and unhealthy.

In propagating it by cuttings, any time during summer would do; but, as a matter of choice, I would prefer March or April. The points of shoots getting firm at their base would answer, but I prefer firmish side-shoots, from 2½ to 3 inches long, rather green at the point, but brownish and firmish at the base. These are to be cut across at a joint at the bottom, the leaves there removed; the pair above either removed or shortened, and, if long, a

little shortening given to all but the terminal ones. They may then be inserted in a well-drained pot, in silver sand over very sandy peat. The success will be all the more certain if a small pot is reversed in the centre of the cutting-pot, so that the base of the cuttings may abut on the centre pot. Fill any holes made by the dibber with silver sand; water well; and, when the sand is firm and the plants dry, cover the pot with a bell-glass, and plunge the pot in a mild bottom heat, shading the glass in bright sunshine, but giving no shade when cloudy, removing it early in the afternoon, and giving a little air under the glass at night, replacing it before sunshine in the morning, and preferring to keep the atmosphere surrounding the cuttings and the bed somewhat moist instead of watering the cuttings much. When struck, pot-off singly in small pots, or three round the sides of a four or five-inch pot, using at first a light soil, as three parts of heath soil to one of loam and one of silver sand, and increasing the amount of sand as the plant gets older.

Under the most favourable circumstances, a cutting could hardly be expected to make a show as a flowering plant under three or four years, or even more. Amateurs would, therefore, be nearer their purpose to procure from a nurseryman a nice, bushy, healthy plant, in a four or a six-inch pot; and though I give the process of propagating, yet, with all such things, it it will be the truest economy to keep in mind the division-of-labour principle and purchase a nice plant, as propagators by profession can do all that sort of thing at half the labour and expense that any amateur, or any gardener with a great variety of plants demanding his attention, could by any possibility do.

Supposing the plant to be obtained, my cultural remarks will chiefly have reference to getting it to bloom early in the summer of the following year. The plant, then, home-raised or purchased, being a nice little stubby plant in the end of March or beginning of April, and occupying a five-inch pot pretty well filled with roots, I would keep the plant in a temperature of from 50° to 55°, with a view to promote free growth, and this, especially in a bought plant, for a fortnight or three weeks after obtaining it, so that all the stagnation of the journey might be got over. The next thing to do is to give the plant a larger pot. Unless in skilful hands that will regulate watering to a nicety, very large shifts are to be avoided; but so are very small ones, as the plant seems to need a little nursing after every shift. Well, supposing the plant is in a five-inch pot, I would transfer it to a seven or an eight-inch one, draining the pot well, using a little broken sifted charcoal over the drainage—that is, getting rid of the dust; then gently disentangle the roots outside the ball, so that they shall run at once into the new soil, taking care that before shifting the ball is thoroughly and sufficiently moistened, as fresh-potting such a plant dry is next door to throwing it away. The soil should be in good order, neither wet nor dry, and picked-in pretty lightly among and to the roots.

For plants about this size three parts of heath soil to two of loam should be used; and one part more may consist of silver sand, broken pots, and nodules of charcoal, so as to allow free passage for water. When the plants come to stand in a ten or twelve-inch pot, the fibry loam and heath soil may be in equal proportions, and then the loam will insure more stubbiness in the growth. Then, too, a little fine leaf mould may also be used in the soil. A little moss will likewise be an advantage between the soil and the drainage.

First Summer's Management.—After potting, it would be well to raise the temperature gradually from 50° to 60°, using a little shade in bright sunshine, and frequent sprinklings overhead, until the roots are working freely in the fresh soil. Until then, water should be given carefully, so as not to deluge the fresh soil until the roots get into it. A skiff from the syringe will be useful in sunny afternoons until the end of July. As soon as you perceive the roots

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are taking fresh hold, the training of the plant should commence, fastening some shoots nearly horizontally, but letting their points have an upright direction, so that the plant when full grown shall have an orbicular form. Many of the shoots will need no stopping, owing to their comparative weakness; but all the stronger shoots will need to be stopped several times, so as to insure compactness and regularity of growth. When blooming next season is resolved on, no stopping of shoots should take place after the end of June. Water will be required in greater quantity as the sun gains strength; and as the roots get to the sides of the pot, manure water will help to give strength and colour, using it in a clear and weak state. Were I not to think of blooming the plants the following year, I would shift again in June; but, wishing to have flowers, I will not do so, but will gradually give the plant more air after July, to consolidate the little shoots.

Autumn and Winter Treatment.—In August, in addition to giving more air in a greenhouse, I would prefer the plant to stand in a cold pit, with glass over it, air being afforded back and front. In September, I would gradually diminish water, and by the end of the month put the plant in a house where the temperature will not be below 45°, nor above from 50° to 55° with fire heat, during the winter. Water, also, should be given carefully, and the plant will be safer if the pot stand inside of a larger pot, with damp moss stuffed between them. In spring, the plant may have from 5° to 10° higher temperature, as the sun gains power, and more moisture in proportion, which will cause the flower-buds to show and swell.

When in bloom, the plants will keep their beauty longer in a cooler atmosphere, and with a little shade to break the fierceness of the sun's rays. When done flowering, give what little pruning is necessary. Encourage the plant to grow, shift into a larger pot if necessary, keep close and moist until there is free fresh rooting, and, in autumn, give more air and sunlight, as already described, and house in time for the winter. If a little fly appears, smoke in the usual way. The most troublesome insect is the thrips, and the best preventive is a free use of the syringe when growing, and frequent smokings and washings as soon as one is seen. If manure water is used from the droppings of animals, it would be advisable to soak the droppings at first in boiling water, which will destroy all vermin and their eggs, and the water may be reduced enough afterwards. In watering in winter, the water should be soft, and a few degrees warmer than the atmosphere of the house.

F.

CULTURE OF THE PEACH AND NECTARINE.

It may seem superfluous to write upon the culture of the Peach and Nectarine, because so many cultivators have already given their experience on the subject. Now I have been a grower of these fruits for nearly half a century, and during that long time I have studied the various causes of success, and, what is equally important, the causes of failure; and the result of my reflections leads me to the conclusion that there are several points of culture that the writers on this subject have either entirely overlooked or have not given sufficient importance. I have come to the determination, therefore, of writing a few notes on their culture; and in so doing, I shall endeavour to treat fully of everything necessary to be done in order to grow healthy long-lived trees that will produce annually a fair crop of fruit. I attempt this with all due deference to those who have gone before me, and shall not, in order to set up myself as a critic dwell upon, or even mention, where I think they are mistaken or not explicit enough to be understood by the tyro in Peach-culture.

I know, of late years, it has been the fashion to decry the hardihood of these fruits in this country. Now that glass is cheap every unsuccessful grower says the Peach should be in all cases covered with glass to ensure a crop. I would ask such, Are you prepared to prove that the climate of this country is more severe than it was thirty or forty years ago? Unless that can be proved I opine that, with proper care and close attention to a proper course of culture, from making the border to the ripening of the first crop of fruit, the trees bearing these delicious fruits can be grown as successfully now as our older gardeners grew them fifty years ago. It is true when unfavourable seasons occur unprotected trees will suffer; but in such seasons the skill, attention, and forethought of a good gardener will be brought into play to overcome the untoward weather, and success in such seasons shows the difference of skill.

Any careless cultivator can have a crop of fruit in warm summers, provided the preceding one has been warm also to ripen the wood of his Peach trees. But that is not sufficient for the owner; he wants fruit every year, and if he has provided all things necessary he ought to have his want supplied.

The question now arises, What is required in order to succeed with moderate attention in cultivating the Peach in this country without the aid of glass? The first thing is a proper situation. Formerly a great notion was entertained by our gardeners, or planners of gardens, that a low sheltered situation was the very best for a garden. That mistaken idea is, I think, now entirely exploded. A low situation, instead of being the best, is the worst for a fruit garden. The most careless observer must have remarked that tender plants suffer earliest from frost, both in the spring and autumn, in low grounds; whilst on moderately high land the slight frost has no effect on them. Many an autumn eve we see heavy mists on low grounds, whilst higher land is quite clear of them. The reason of this is that cold air is heavier than warm air, and therefore it sinks down by its gravity and shows itself as mist, displacing the warmer; and when the cold is so intense as to reach the freezing-point, vegetation suffers. These patent facts lead to the conclusion that a fruit garden should be placed on a moderately elevated platform. Even an elevation of 50 or 100 feet above the bottom of a valley would be desirable. I might give many instances of places where the gardens are placed in low situations, where such fruits as the Peach, Nectarine, and Apricot often fail in yielding fruit. Sufficient for my purpose it is to mention Chatsworth, Worsley Hall, Trentham, and the old garden, now removed, at Welbeck. In such places where the gardens are still continued it has been found necessary to cover the Peach walls with glass, in order first to ripen the wood, and secondly to ripen the fruit. This covering of glass is not adopted for the purpose of forcing the fruit into early maturity, but is used merely as a protection against early and late frost. In a properly elevated situation the glass as a protective agent may be dispensed with.

From the above remarks I think it will be seen, that in order to succeed in Peach-culture against walls without glass, it is desirable—nay, absolutely necessary, to place the garden, where possible, in a moderately elevated situation. If there are higher grounds on the north, north-east, and north-west sides of the garden, and those hills are planted with forest trees to shelter the garden from the winds blowing from these quarters, you have the best situation immaginable, not only for fruit-tree walls, but for every other production expected from a garden. Let every one, then, who has the forming of new gardens, study over the above remarks, and, if possible, choose such a site for the fruit and kitchen garden.

Soil.—The next most important agent for the production of the fruits, Peaches and Nectarines, is the soil. This includes drainage, subsoil, and surface

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soil. In the course of my experience I have observed that all stone fruit, without any exception, thrive best and are most fruitful in calcareous soils. In the limestone districts of Yorkshire the Peach trees against walls, where properly attended to, are healthy and fruitful; and round the town of Sherborne, where limestone abounds, that excellent preserving Plum, the Winesour, grows in the hedges and bears profusely, and also the Damson Plum is still more common. Almost every cottage has its garden hedge formed of these excellent fruits. I mention these as a proof of my maxim that stone fruits thrive best in the limestone districts, where the subsoil is formed entirely of that material. The garden at Womersley Hall, the seat of Lord Hawke, has a subsoil of limestone; and there Peach trees live to a great age and bear fruit plentifully. Also near there is Byram Hall, the seat of Sir John Ramsden, and the garden is also similar to Womersley as to its soil. In that garden some years ago there was the finest Peach wall in the kingdom. I forget the length, but it was considerable, and eight trees completely covered it, not a sickly branch to be seen. They were trained in what was termed the Seymour method, which I shall describe presently.

Well, what does all this amount to? Why, that whoever has the opportunity should form his Peach-borders with soil containing calcareous matter.

Let me, however, begin at the beginning. Supposing it is determined to make a Peach-border, either in a new garden or an old one, begin first by excavating the soil; the necessary width for ordinary walls need not exceed 12 feet. In general, as a useful rule, let the border be the same width as the wall is high. Then as to depth, 18 to 20 inches will be amply sufficient. The width being set out, then cut a main drain deeper than the bottom of the border: this main drain should be built with bricks laid flat and covered with flags the exact size of the drain. It should be placed at the side of the border the farthest from the wall, then form transverse drains across the border. If the subsoil is wet these cross-drains should only be 10 feet apart; if moderately dry then 12 or even 15 feet apart would do. Lay earthen tiles at the bottom, connecting them with the main drain in front; of course, these cross-drains should have a gentle fall to carry off the superfluous water; next fill up the drain above the tiles with open rubble or scoriæ from which the smaller particles have been sifted out; then, if it can possibly be procured, lay all over the border a layer of broken unburnt limestone. If this, however, cannot be obtained, then, instead, cover the bottom of the border with brickbats mixed with rough pieces of lime rubbish. This completes the drainage.

These trees require, in order to produce healthy, fruitful, and long-lived specimens, a strong pure loamy soil of an adhesive character, such as an upland good pasture would furnish. Take it off in turves about 3 inches thick, and cart it home near to the garden. Lay it in a long heap, and when sufficient is procured commence at one end to chop it into small pieces, and whilst that is going on mix it thoroughly with some old lime rubbish, unless you are so fortunately situated as to obtain the turf from a pasture on a limestone basis, then the lime rubbish will not be needed. Whilst the chopping and mixing process is going on procure some thinner turves, and with them cover the drainage grass side downwards. This will prevent the finer particles of the soil from falling into and choking up the drainage. When that is done lay some boards or planks, and wheel in the soil to one end, forming the border with a very gentle slope to rather more than the full height to allow for settling. From 18 inches to 2 feet will be ample depth. If the garden is situated on a level country, I would advise the border to be raised a foot higher than the general level; but if the garden is on a gentle eminence, as recommended above, then it may be nearly level with the rest of the garden.

It will be observed that I make no mention of dung as a component part of the soil. It is a great mistake to put any manure of any kind in a Peach-border. It is injurious to the trees in many ways, the worst being in inducing young trees to make what gardeners call water-shoots, or, as the French term them, *gourmands* or gluttons. Such shoots not only rob the rest of their due nutriment, but, also, they seldom in our climate get duly ripened, and then become diseased, ulcerated, and gummy. If, however, in process of time the border become exhausted, then it will be proper in the autumn to lay on the surface a mulching of rotten dung. The autumn and winter rains will wash down the soluble enriching qualities of the dung sufficiently, so as to give fresh food to the trees.

As to the time of making the border, I would advise the end of July and through August. The weather then is generally dry, and the soil is, of course, dry also. By doing it thus early the grass plants will perish, all but those on the surface, and they may be killed also by digging the border over two or three times before the winter sets in.

Varieties of Soil.—The only successful adaptation of a different kind of soil to the above that ever came under my notice occurred in the gardens at Wheatley Hall, near Doncaster, the seat of Sir W. B. Cooke, Bart., where I spent part of my apprenticeship. The natural soil there is of a light sandy nature, which, though excellent with plenty of manure for vegetable crops, was found not to be favourable for Peach-culture. The river Don runs through the estate, and deposits a close, compact sediment. This is called "warp soil." A sufficient quantity of this warp was collected, laid in heaps, and when in a proper mellow condition the Peach-borders were made of it without any other ingredient. The then gardener was a Mr. B. Mann. He had been there for a quarter of a century, and used this warp soil with the best effect. The trees grew well in it, producing just the right kind of healthy wood, and bore excellent fruit annually. It is true the walls were flued, and we used canvas screens to protect the blossoms against late spring frosts, and in wet summers the fires were lighted to heat the walls and ripen the wood; but these protective measures had been adopted before, when the natural soil formed the borders, and were not found effectual to keep the trees in health. Whoever, then, has such a soil conveniently placed near to his garden may make his borders of it without any fear of failure.

Choice of Plants.—This is an important part of the business. When time of coming into bearing is not thought of much account, then maiden plants—that is, trees a year old—might be preferred; the cultivator then has the mode of training from the beginning under his own care; but I certainly would prefer trees that have been trained in the nursery three years. I should, however, take the precaution of visiting the nursery early in the autumn and choosing the best-trained and most healthy trees, then and there putting a mark upon them. This plan is the best, and most satisfactory both to the buyer and seller. Then, as soon as the leaves fall, the trees should be carefully taken up, the roots packed in moist moss, and the trees so packed as to travel safely to their destination. Thus packed both at the root and the top, they would in these railroad days come to hand in good condition. Directly they arrive let them be carefully unpacked and planted as soon as possible. If the roots should have become dry, I would dip them in water thickened with fine soil. The question now arises, At what distance should they be planted from each other against the wall? Some writers say 15 feet, and some as much as 24 feet. These are, however, extremes, the first being too close and the other too wide apart. The medium is the best. Eighteen feet is the distance I recommend. The best trees I know in existence now are at that

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distance. If, however, the walls are low—that is, only 9 feet or less high, then the trees may be planted nearer to each other, as the angles of the shoots will bring them soon to the top of such a wall; but if 12 feet high, then my 18 feet will be a fair equable distance. As it will take several years before the trees will meet, standard-trained trees might be planted between those that are finally to cover the wall; but the cultivator must have the nerve to remove those riders, as they are termed, the very year the permanent trees require the space.

Planting.—In doing this let the roots be spread out equally every way, and not covered too deep—2 or 3 inches are enough. By spreading them out horizontally the roots will continue to, at least, have a tendency in that direction—a point to be desired, for then the roots are within the reach of the heat of the sun just at the time the shoots need all the help the roots can give them. In most Peach-borders, for the convenience of attending to the trees, there is a narrow path formed some 2 feet from the wall. That path should be made of a trellis of wood, so that the soil may not be too much compressed. If the path is soil only, the constant treading upon it must be injurious to the roots. Let every cultivator, then, set his face against such a path, unless it is trellised.

The planting being finished, the shoots should be securely fastened to the wall to prevent their being blown about with the wind, which otherwise would, in heavy gales, rub the branches against the bricks and bruise the bark, which might bring on in such places wounds that would canker and exude gum—a casualty always to be avoided. After that is completed, then lay a mulching of littery dung, extending a foot or so beyond the extremity of the roots. This will protect the roots from the frost, and will keep them in action all through the winter. It is remarkable what a large number of rootlets will strike out immediately after the trees are planted. It would seem as if nature was putting forth every effort to recover lost time in root-action in consequence of the removal, and the more these efforts are protected and encouraged the greater chance there is of the trees pushing vigorously in the following spring: hence the utility of protecting these young fresh roots, by mulching, from the winter's frost.

Pruning, the First Season.—It is a common practice to cut back almost close to the stock, not only maiden trees but even such as have been trained at the nurseries, for one, two, or three years. This, it is alleged, is done in order to get the centre of the tree well filled with leading shoots to form the future tree. This is an undoubted mistake. There is no necessity for it unless the trees are very weak indeed. Maiden plants must of necessity be cut down to four or five buds to obtain as many branches to form a tree for a wall, and nurserymen, perhaps, are compelled for want of a wall to cut back older trees; but when a three-year-old tree is planted against a wall as a permanent tree, it is a barbarism to cut it down so severely the first year after planting.

Training.—There are only two methods of training the Peach tree that are worthy of notice. The first is the one generally followed, and is named the fan method, from the main branches spreading out in a similar manner to the ribs of a fan: the second is a modification of it, and was invented by Mr. M. Seymour, gardener at Carlton Hall, near Snaith, in Yorkshire. Good fruit has been produced by both of these modes of training. In the course of my gardening life I have practised both methods, and must confess that I give the preference to Seymour's plan.

The first may be described as having the young shoots on both sides of the main shoots, and the other—that is, Seymour's—has the young shoots only on the upper side. It is necessary to mention that the Peach and Nectarine bear their fruits on the shoots made the previous year: hence it is needful to train

in annually young shoots to bear fruit the following year. This being understood, the cultivator will have to determine, at the time of planting, which of the above methods he will follow. Trained Peach trees from a nursery have generally five shoots. Now, if either method be adopted, the trees should be pruned in the latter end of February or beginning of March, and trained with one shoot for a leader and the others horizontally, two on each side; then every bud or nearly so will break, and the trees may then, by disbudding the useless or superfluous shoots, and training the remainder in, be furnished with well-placed leading branches and bearing shoots. The cultivator should study the figure the trees are to assume when the wall is covered with them, and lay-in branches accordingly to effect that purpose.

In the second year, if all has gone on well, the trees will be again pruned at the same season, and the year's shoots trained in fan-form; and so the management in regard to pruning and training must be followed up till the trees cover the walls.

If, however, the cultivator should choose to adopt my favourite mode of training, then he will proceed from the first to prune and train-in the shoots only which are produced upon the upper side of each branch. He will find this the most symmetrical, and, at the same time, the most simple and the most easily understood of any mode of training.

The summer pruning and training commences almost as soon as the buds break. The grand object is to obtain shoots for bearing the year following. In any mode of training, the young shoots should be retained that are placed near to the base of the shoot that is bearing fruit. All others should be rubbed off at once; they only, if left on any time, rob the really useful ones of nutriment, and crowd them unnecessarily: therefore, I say, off with them at once. If the leading shoot of the bearing branch is too vigorous nip off the ends, leaving a sufficient number of leaves to draw up the sap.

(*To be continued.*) A.

ON THE CULTURE OF ERYTHRINAS.

The different species of Erythrina are all splendid plants, with fine large leaves, and beautiful brilliant scarlet or red flowers. For late summer or autumn decoration they are very useful. During the winter months they should be kept perfectly dry. If the pots are laid on their sides the plants will do very well under the greenhouse-stages, or any place where they are safe from frost.

Cuttings of the young wood, taken off in May or June and put into sandy soil and plunged in a nice bottom heat, root very freely; but the best way of increasing the Erythrinas is from eyes of the last year's wood, put in exactly as Vine eyes are, plunged in bottom heat, and treated in a very similar manner.

The eyes should be put into pots or pans in February or the beginning of March. As soon as they have grown a little and made roots they should be potted off singly into small pots, and again plunged in a slight bottom heat. They should be kept close and be sprinkled slightly with water from a very fine rose. They will soon make roots into the fresh soil, and in a few weeks will be ready for a shift into larger-sized pots. The compost should now be one-half good turfy loam, one-fourth peat, and one-fourth good rotten dung, the whole well mixed up with a little sprinkling of river sand among it. If the plants are pretty well rooted they should have a liberal shift, and if they can have a little bottom heat for a few weeks longer they will grow all the more rapidly.

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As the plants advance in growth they should be tied neatly to stakes. As soon as the pot begins to get pretty well full of roots, they should all be shifted into pots large enough to flower in, using the same kind of compost as recommended for the last shifting. After they have been all potted they should be placed in a late vinery, or other house, where they can have a temperature of from 55° to 60°, with plenty of light and air. They should be frequently syringed, to prevent the attacks of red spider. They will not require much water until they begin to root freely into the fresh soil. They should have an abundance of air after they show flower, and liberal supplies of water.

When the flowers begin to expand the plants should be taken to a cool house, where they will continue in bloom for many weeks. As they go out of flower water should be gradually withheld. They should then be allowed to go to rest, and be kept quite dry until the following spring, when they ought to be pruned back to four or five eyes, repotted, and put into heat, when they will soon show signs of growth. When they have made shoots about a foot long they should be shifted into pots large enough to flower in, and placed in a house where they can have plenty of light and air. They must be well attended to in watering, and the shoots ought to be kept neatly tied to stakes as they advance in growth. When they come into flower they should be taken to a cool house. After the blooming is over they should be gradually dried off, and rested during the winter as before.

I have seen Erythrinas in the south of England stand out of doors during the winter, without any protection whatever, and flower very finely in September. It is best, however, to plant in warm situations, and to cover the roots in winter with bark or ashes. Erythrinas also do well out of doors in the south of Ireland without any protection. In the north of England it is best to keep the plants in pots, winter them in-doors, start them early in spring, and plunge in the open borders in June, in sheltered situations. Here they do beautifully, and last a long time in flower.

Stourton. M. Saul.

CULTURE OF THE FUCHSIA.

In growing Fuchsias young plants may be procured at any time from Christmas to August. If so late as August, they should be kept growing as late as November; but they must be sufficiently strong to endure going thoroughly to rest for a month or so, as circumstances may require, by being placed in a cool airy situation, and kept almost dry at the root. About January they must be introduced into a moderate heat, say about 55°. As soon as the buds appear shake the soil from the roots, and repot them into smaller pots, which should be either new or perfectly clean. Preserve the roots of the small plants; those of older ones can be slightly shortened. The soil should be prepared by being placed in some warm dry place, so that it may become gently warmed. Be particular about the drainage of the pots. Place a few small pieces of potsherd at the bottom of the pots, and add a thin layer of moss over them, to keep the soil separate. If this is not attended to, the drainage will become choked and the plant sickly; and, if this happens, they rarely recover themselves during the season.

Fuchsias are like Radishes—the quicker they are grown the better. Let the plants be potted carefully, placing the roots round the pots, and settling the soil well between the roots, pressing it down moderately firm, but leaving sufficient space for water on the top. After potting is finished, plunge the pots where the roots will have the benefit of a slight bottom heat of about 75°,

till they get thoroughly into growth, after which they must be gradually removed. Keep them well syringed, and let the top heat range about 55° at night, and about 65° in the daytime. Be careful of damp, and by no means admit cold draughts nor use cold water; if so, the leaves will become brown, and the vigour of the plant will be gone.

Suppose cuttings to have been struck about the beginning of January, and to have been potted off and doing well. About the third week in February the question of stopping must be considered. One of the first objects in Fuchsia-growing should be to get the plants into a good shape when young, and this requires some consideration. There are some sorts very difficult to get up sufficiently high for specimens, but which if once got up will be sure to become bushy at the bottom afterwards, because they are naturally dwarf. Others that are strong growers, such as Prince Alfred or Exhibition, require a good deal of stopping when they are young. They must have their tops taken out when about 6 inches high, and four to six side branches must be tied out, by placing a piece of bass round the rim of the pot, and fastening the branches to it; these must be allowed to grow about 5 inches long before a centre shoot is again permitted to grow up; and when this centre shoot has grown from 6 to 10 inches more, it is to be stopped again, to give the side branches strength, and to give a better bottom to the plant. This kind of stopping is to be continued till the plant is so thick that you cannot see through it; and the top of the plant must by no means be allowed to outgrow the bottom—which indeed can easily be prevented by the simple process of taking out the centre of each shoot with a sharp-pointed knife. As the pots fill with roots the plants must be shifted into larger ones; they must never become pot-bound, as that would throw them into blossom. They must receive their last shift at least three months before they are required to be in bloom, and the stopping must be discontinued nine weeks before they are required for exhibition. It is important to keep a regular temperature, for no plant is more liable to injury from sudden changes of heat than the Fuchsia. Let the temperature range after the middle of March 5° higher than already mentioned; and as the season advances 5° more may be permitted, with plenty of moisture in the house. Always syringe twice a-day, and in hot weather very frequently, and keep plenty of water on the floors and staging when the ventilators are open. Give all the air possible in fine weather. As soon as the sun begins to give out much heat, the blinds must be put in requisition; they are very necessary in growing Fuchsias, but the very minute the sun is off the plants let the blinds be drawn up, for they require all the light possible.

Young plants, treated the first season as I have described, will make fine exhibition plants the second. Some sorts will do even the third, but they very seldom make creditable specimens after their second year.

About thirteen weeks before the show day the plants should have their last shift into 12-inch pots. The soil must be in good condition, and the pots clean and well drained with broken pots about an inch thick, and a layer of moss over them; then add about an inch of soil pressed down rather firmly, and all is ready for the plants to be turned into the blooming pots. Loop the branches up on one side to prevent breaking them; be sure the ball of the plant is thoroughly moist. Take out all the drainage, and place the ball carefully into the new pot, filling up all round, without injuring the roots. Keep the house moist and closed for a few days, and the sun from them, but be sure not to overwater them till they get hold of the new soil. In about three weeks they will be growing fast; then commence stopping, for the last time, by taking a few points out each day for a week. At this stage prepare the liquid manure

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tub. Get some horse-droppings fresh from the stable, say about half a bushel to a barrel of rain water; let these be mixed well together, and half a peck of soot added. When the liquid is clear let each plant have a small quantity, say about a pint, every three days, to be increased each week, but be sure not to give it too strong, or it will take all the flowers off. Apply it in the after part of the day with the regular water. Give the plants every encouragement to grow, and regulate the branches that may require it. The plants should each have a strong stake in the centre, to which the shoots should be well fastened. The bloom-buds will soon begin to appear, but the forward ones should be picked off till they appear regular all over the plant.

The plants are prepared for exhibition in this way: The day before the show a supply of stakes, thin paper, and Cuba bast must be got ready. Put the stakes in the soil, gather three or four bunches of bloom together, put the paper round them, and fasten the paper to the top of the stakes. All the blooms must be done in this way to make them travel well; and if they are carefully tied, and three large nails driven into the bottom of the van round the bottom of each pot, the plants will travel any distance without damage. When they arrive at the show the paper has to be taken off, and the flowers will then look as fresh as they did before they started. Place them on the stage, the tallest at the back, and very much raised, if they are three deep, so that they may show themselves; if only two deep, of course they will not require so much. Every flower must be made the most of. Let each pot be slightly pitched forward, and let every defective leaf and bloom be picked off, and the names plainly written. All is now ready for the first prize. As soon as the show closes, let them be carefully papered up again, and they will be little or none the worse for being shown to the public.

To get the first prize, the plants should have abundance of large blooms distributed regularly all over the plant. The blooms must be of a perfect shape, and the sorts distinct in colour. The foliage must be perfectly green, and free from dirt and insects. The plants must have health and vigour, so that they can throw out branches to give them a graceful and elegant appearance, and should be as nearly of the shape of a good specimen of Cedrus deodara as possible, with only one stake in the centre. Every plant should be of the same shape, and about the same size, so that they may have the appearance of having come out of one mould. The plants must be perfectly round, so that one side is as good as another. Let the blooms hang about 4 inches from the floor all round the pot, in which way the pot will be half-hidden by the plant. Plants in a 12-inch pot, when well grown, ought to be 5 to 6 feet high, and 4 to 5 feet through.

In the early part of the spring, Fuchsias are very much injured by what is commonly known by the name of the "spittle fly," and they must be well looked after. The only means I know to get rid of them is to catch them and kill them, for tobacco smoke has not the slightest effect on them. Green fly and thrips are easily got rid of in the ordinary way of fumigation with pure tobacco. I have tried many things recommended, but none answers so well as this. Two applications, one in each week, will remove them for a long time, if properly done.

The soil that I use is one part yellow decayed loam, one part leaf-mould, one part peat or heather soil, and one part well-decayed cowdung, with almost another of sharp silver sand, well mixed together two months before using.

HENRY CANNELL.

Woolwich.—(Gardeners' Chronicle.)

OUR MONTHLY CHRONICLE.

The International Horticultural Exhibition has been the great event of the month, and the all-absorbing topic in the horticultural world. To it horticulturists have flocked from all parts of the world, and not a few gentlemen came from France, Belgium, and more distant parts of the continent to see the riches of British gardens, of which they had heard so much and seen so little. They were not disappointed, for never has there been in this or any other country a horticultural exhibition on such a scale and of such excellence as that which has just closed. The attempt was a bold one, for notwithstanding the considerable sum subscribed towards defraying the expenses of carrying it out, no one could be certain of its financial success; the weather might have proved unfavourable, or the Exhibition might not, in a time of commercial disaster at home and commotion abroad, have met with a due share of attention and favour; but happily the attempt was crowned with a success that far exceeded the most sanguine expectations of the promoters, for the Exhibition was not merely a splendid success in a horticultural, but also in a financial point of view, having been productive, we believe, of a considerable surplus. On the Saturday previous to the Show, in the vast tent there was little to be seen beyond the turfed banks prepared for the reception of the plants; a few Rhododendrons here, some Pinuses there; a lofty tree Fern at one point, and a lowly Moss at another; and there were not wanting those who predicted that the plants never could be arranged in time—it was an impossibility; but by Tuesday morning how marvellous the transformation, and how brilliant the scene! Looking from the elevation at the southern end of the tent the eye was arrested by glorious specimens of stove and greenhouse plants, by wonderful Azaleas—perfect pyramids of bloom, by masses of Pelargoniums, and by Roses such as even sunny France could not excel. Then there were tree Ferns, ranging from 20 to 30 feet in height, and with spreading heads half as much in diameter; Palms of many forms, and tropical in their character; Yuccas and Agaves near at hand, and in the distance sombre Yews and more lively Pines, relieved by gay flowering shrubs. Turn which way one would some fresh beauty met the eye, or new discovery was made. Faults there may have been in the arrangement—no one could reasonably expect it to be perfect when the time was so short, the mass of materials so great; but the general effect was such as to excite the admiration of even the least impressionable. Again, in the Orchid tent the display, though more confined in the area which the eye was enabled to comprehend, was of the richest; for there were gathered together the most beautiful of that lovely family of plants, so varied and fantastic in form, so rich and diverse in colouring. Here, too, were Marantas with their leaves beautifully and variously banded and barred with different shades of colour, Caladiums powdered with vermilion or marbled with white, golden-flowered Japan Lilies, Bertolonias studded with pearls or with rubies, and many interesting novelties, chiefly from tropical countries.

The subjects exhibited were so numerous that our remarks on each class of them must necessarily be very brief. Flowering stove and greenhouse plants were an important feature, and without presenting anything very extraordinary in their character, were generally in great perfection. The collections of Mr. Baines, gardener to H. Micholls, Esq.; Mr. Peed, gardener to W. Leaf, Esq.;' of Messrs. Lee, and of Mrs. Cole and Sons, were particularly worthy of notice, and comprised fine Ixoras, Heaths, Azaleas, Eriostemons, remarkably good specimens of Acrophyllum venosum, Genethyllis tulipifera, Aphelexis, Pimeleas, and Medinilla magnifica. A very fine specimen of Dracophyllum gracile, with numerous fine heads of flowers, came among others from Mr. Rhodes. Fine-foliaged plants and Ferns were in very strong force, and comprised Crotons, Rhopalas of large size, Alocasias, variegated Aloe-leaved Yuccas, Marantas, Dracænas, Seaforthia elegans, Latanias, and other Palms; and of exotic Ferns there were many fine examples of Dicksonia antarctica, Alsophila australis, Cibotiums, Gleichenias, Cyatheas, and Marattia elegans; but by far the most remarkable were the tree Ferns exhibited by Mr. Williams, of the Crystal Palace, and which averaged 24 feet in height and had heads 16 feet in diameter. The largest was a most noble specimen, not less than 30 feet in height. Of hardy Ferns several fine collections were shown; and those from Messrs. Ivery, of Dorking, and W. Marshall, Esq., were especially good; Messrs. Ivery also exhibited a number of new varieties. Azaleas as shown by Mr. Turner and Messrs. Veitch were magnificent, the plants being 7 or 8 feet in height and as much in diameter at the base. Roses from Mr. Turner and Mr. William Paul were in charming bloom, and those from the former were remarkable for their freshness and brightness of colour; good examples were also shown by Messrs. Francis, Lane, and Paul & Son, and Maréchal Niel from Mr. Mitchell of the Piltdown Nurseries, Maresfield, was an object of much admiration. The show of Pelargoniums was also magnificent, and being arranged in the circumference of the centre circle on turf banks, they formed a conspicuous part of the display. Mr. Turner and Mr. Fraser took the chief honours in the nurserymen's classes, both for show and fancy varieties, Mr.

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Turner being first and Mr. Fraser second in the one; and in the other the positions were just reversed. Mr. Bailey, gardener to T. T. Drake, Esq., Shardeloes, who had remarkably fine specimens both of show and fancy varieties, took the lead in the amateurs' classes.

Orchids alone occupied 400 feet run of bank, and the collections of R. Warner, Esq., Broomfield, Mr. Bullen, gardener to A. Turner, Esq., Leicester, Messrs. Veitch and Sons, Mr. Williams, of Holloway, Mr. Penny, gardener to H. H. Gibbs, Esq., Regent's Park, and Mr. Wilson, gardener to W. Marshall, Esq., Enfield, were admirable, and there were also several very good collections from other exhibitors, though the plants were smaller. The new Phalænopsis Lüddemanniana was shown in several collections, and in one it had as many as nine blooms. It is evident that this charming introduction, as in the case of new Orchids generally, will, when it shall have gained strength, be seen in much greater perfection. Already it has manifested a great advance on what it was a few months ago, when it was exhibited before the Floral Committee at South Kensington as a weakly plant with smaller and far less richly coloured blooms. A representation of this beautiful Phalænopsis was given in our December Number. P. Portei was also shown in fine condition, and there were two remarkable examples of Cypripedium caudatum, with petals nearly 2½ feet in length; one of these came from Mr. Cullen, gardener to W. W. Buller, Esq., and another, from Mr. Wilson, had no less than nine flowers, and these of large size. Of Cypripedium barbatum superbum there were in Mr. Bullen's and Messrs. Veitch's collections examples having half a hundred blooms, whilst of C. villosum Messrs. Veitch had a plant with thirty. Trichopilia crispa and several richly coloured Cattleyas in Mr. Warner's collection were well worthy of special notice; and of Vanda, Cypripedium, Saccolabium, Dendrobium, and Lælia from various exhibitors there were numerous fine specimens. Nor should the beautiful Odontoglossum Pescatorei and nævium be passed over, for Messrs. Veitch had each with a score of blooms; and mention must also be made of Cypripedium Stonei, which was shown by Mr. Williams, with four of its finely-marked blooms, and the same exhibitor had beautiful Anæctochils and other variegated Orchids.

Of Lycopods beautiful pans were exhibited by Messrs. Veitch, Mr. Barnard, gardener to J. W. Taylor, Esq., and Mr. Farbairn, gardener to the Duke of Northumberland, Sion. A new Selaginella from the Solomon Islands, shown by Messrs. Veitch, bore a remarkable resemblance to a pendulous-growing Conifer. Pitcher-plants from the same eminent firm were very fine, and so were the Sarracenias, exhibited by Mr. Williams.

Of other subjects, Pandanads, Cycads, Arads, Araliads, Marantads, Dracænas, Caladiums, and Anthuriums were all worthily and numerously represented, the Marantas being especially fine. Hardy trees and shrubs, including Conifers, Taxads, and Hollies, for which special classes were provided, were very numerously shown, and constituted not the least interesting part of the Exhibition; they chiefly came from Messrs Veitch, Lee, Paul and Son, W. Paul, Standish, Waterer and Godfrey, and Jackman, of Woking; and in addition there were fine standard Bays, Hollies, Box, Portugal Laurels, and Yews; also a fine pair of standard Myrtles from Mr. Bull.

Some plants of Eucharis amazonica from Mr. Howard, gardener to E. Brand, Esq., Balham, were very remarkable for their great size and luxuriance of growth. They measured about 5 feet across, and their white blossoms were nearly 4 inches in diameter. The plants, it was stated, when purchased two and a half years ago were in three-inch pots, had been kept continually growing in bottom heat in a stove, shifted into larger pots when necessary, and liberally supplied with manure water. Lilies of the Valley with variegated leaves, admirably grown and bloomed, were shown by Mr. Salter, and Aucubas crowded with coral red berries by Messrs. Lee. The Ailanthus silkworm feeding on the tree, together with specimens of the silk, was exhibited by Lady Dorothy Nevill, to whom we owe its introduction into this country, and a knowledge of its value.

Fruit was not shown very largely, but was generally very good. Pines were few in number, and the best were the Queens from Mr. Cameron, gardener to the Duke of Richmond, at Goodwood, and Smooth-leaved Cayennes from Mr. Barnes, of Bicton, and Mr. Page. Grapes were very good, especially Black Hamburghs, Black Prince from Mr. Hill, Muscat of Alexandria from Mr. Turner, Buckland Sweetwater, and Golden Hamburgh. Messrs. Lane's Vines in pots were fine examples of that mode of culture, and were loaded with large bunches. Peaches, Nectarines, Cherries, and Strawberries, though each well represented as regards quality, were not numerous; but of Apples there were several collections of finely-grown fruit in excellent preservation. A bunch of Musa Cavendishii weighing, it was stated, 76 lbs., was exhibited by Mr. Carr, gardener to P. L. Hinds, Esq., Byfleet, and Dion edule by Mr. Taylor, gardener to J. Yates, Esq., Highgate; besides which, in the various departments of the Show there were a number of interesting objects exhibited, to which we may return on a future occasion.

The returns of the number of visitors have not yet been made up, nor has the amount of receipts been completely ascertained; but up to Saturday, the 26th, upwards of £5200 had been received in payment at the doors, exclusive of the amount realised by the sale of tickets through numerous agents.

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Banquet at Guildhall.—On the evening of the opening day of the Exhibition a grand banquet took place at the Guildhall, at which the Right Hon. the Lord Mayor presided. Upwards of 550 were present, and amongst them were Viscount Powerscourt; Sir Broke Middleton, Bart.; Right Hon. R. C. Nisbet Hamilton; M. A. De Candolle, of Geneva; Professor Koch, of Berlin; Professor Reichenbach, of Hamburgh; Professor Caspary, of Königsberg; Professor Morren, of Liège; M. Schulz Bipontinus, of Deidesheim; M. Meissner, of Basle; M. Weddel, of Poitiers; M. Van Houtte, of Ghent; M. A. Verschaffelt, of Ghent; M. Linden, of Brussels; Sir Wentworth Dilke, M.P.; Dr. Hogg, Dr. Maxwell Masters, Mr. Kelk, M.P.; Mr. J. Clutton, Mr. Sheriff Gibbons, Mr. Alderman Besley, Mr. Pender, Mr. E. A. Bowring, C.B.; Mr. Micholls, Mr. Samuel Morley, Mr. George Godwin, F.R.S.; Mr. J. J. Blandy, Mr. W. H. Dixon; Mr. G. W. Johnson; Mr. T. Moore; Messrs. Veitch, Lee, Standish, Bull, Williams, Paul, Waterer, Low, Wendland, Fortune, and Captain Walker. After the usual loyal toasts had been given and enthusiastically received, Sir C. Wentworth Dilke, Bart., M.P., proposed the health of the foreign visitors and the President of the Botanical Congress, and Professor De Candolle, in responding, returned thanks in his own name and that of the other foreign visitors, for the kindly welcome which they had received both in public and private, and regretted that the disturbed state of affairs on the Continent had prevented many gentlemen from abroad, who would otherwise have been present, quitting their homes. He then congratulated his hearers on the prosperous state of the sciences, and particularly that of horticulture, of which the International Horticultural Exhibition of this year furnished a proof; and he expressed a hope that similar gatherings would be instituted in the east and south of Europe. The Right Hon. R. C. Nisbet Hamilton, Dr. Hogg, and the Lord Mayor having also spoken, and some other toasts having been given, the company broke up.

Dinner at St. Martin's Hall.—This took place on Thursday, the 24th of May, when upwards of five hundred horticulturists and their friends sat down to dinner. Lord Henry Gordon Lennox, M.P., presided, and among those present were Sir C. Wentworth Dilke, Bart., Sir W. Stirling, the Rev. Joshua Dix, Rev. S. R. Hole, Dr. Hogg, Dr. Moore, Mr. G. F. Wilson, Mr. T. Moore, Mr. W. Paul, Mr. J. Lee, Mr. J. G. Veitch, Mr. C. Turner, Mr. A. Dickson, of Chester, and M. Van Geert. The Chairman, in proposing the toast of the evening—"Success to the Horticultural Exhibition and the Botanical Congress," made an excellent speech, which was listened to with much attention; and Mr. W. Paul, Rev. J. Dix, Sir C. W. Dilke, and others also spoke, but space will not admit of further details here.

Déjeuner at Messrs. Veitch's.—Before commencing the formal business of the Congress on Wednesday, the foreign botanists and gardeners were invited by Messrs. Veitch to a magnificent déjeuner at the Royal Exotic Nurseries, Chelsea. The foreign guests were met by a distinguished company of their English confrères, and the occasion was one of much interest. Among the principal visitors were—Professor Lecoq; Professor Triand, of Paris; Professor Koch, of Berlin; Professor Morren, of Liège; Dr. Reichenbach, of Hamburg; M. Barillet, Paris; M. Vilmorin, Paris; M. Pepin, delegated by the French Government; M. Sello, Potsdam; M. Nisson, Naples; Baron Osy, Antwerp; M Linden, Brussels; M. Van den Hecke; M. Willink, Amsterdam; M. Krelage, Haarlem; Viscount Forceville; Sir Wentworth Dilke, Bart.; Sir D. Cooper, Bart.; Rev. Joshua Dix; Rev. Mr. Berkeley; J. McNab, Esq., Edinburgh; Dr. Moore, Dublin; Dr. Hogg; Dr. Masters; G. Eyles, Esq.; J. Liddell, Esq., &c. Mr. Veitch, senior, presided. The visitors inspected Messrs. Veitch's valuable collection of plants, the most notable of which, however, were being exhibited at the Show. The whole occasion was marked by the most cordial feeling, and was a matter of much gratification to those present. Each guest, on leaving, entered his signature in a book, and received from Mr. Veitch his carte-de-visite as a souvenir.

Botanical Congress.—Two meetings of the Congress were held at the South Kensington Museum, the first on Wednesday, the 23rd, on the evening of which day a brilliant conversazione was also held; and the second on the following Thursday. Several interesting papers were read, of which we hope to give some account hereafter. On the opening day (Wednesday), Professor De Candolle delivered the following inaugural address:—

In order to derive the full advantage from a meeting of so many lovers of science, horticulturists and botanists, brought together from all parts of Europe, it is necessary that the common object for which they have met should be perfectly understood.

It devolves on me, who am called upon to preside (an honour of which I feel myself unworthy), to point out the bond which unites us, and of which, perhaps, you have at present but a vague, and, so to speak, an intuitive perception.

In my opinion, we are not here merely as amateurs to satisfy our curiosity. The proof of which is, we are here assembled to listen to discussions, instead of wandering about the fairy-like garden of the Exhibition. Evidently we seek something more than a mere show, and that something is, in my opinion,

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instruction. It is not sufficient for horticulturists merely to see—they must also study and reflect. Neither is it sufficient for botanists to observe details minutely; they must also see the plants on a large scale, and in grouped masses. The connection of Practice with Theory, and of Art with Science, is acknowledged to be indispensable; and in accordance with this prevalent opinion we here affirm, by our presence in this room, the necessary union of Botany and Horticulture. The aim of my brief observations will be to call to mind how they aid each other, and to show how much more they might do so. If I am not mistaken, it will follow from facts to which I shall allude, that our united efforts, scientific or practical, modest though they appear, contribute to increase the well-being of man in all conditions and in all countries.

Firstly, the Advantages of Horticulture to Botany.—Let us first mention the services that horticulture renders, or may render, to botany. Without being myself a horticulturist, I affirm or recognise them willingly, the advancement of science rendering it necessary to have recourse to all its collateral branches.

We no longer live in those times of illusion when botanists merely occupied themselves with European plants, or with a few from the East, and, from a spirit of caution rather than from ignorance, pictured to themselves all distant countries as possessing much the same general vegetation, with a few uncommon or exceptional species. A century of discovery has made known the extreme variety in the Floras, the restricted limits of many species, and the complicated entanglement of their geographical distribution. To see all the different forms of vegetation of the world, one would realise in a degree the history of the Wandering Jew; besides, with this constant travelling, where would be the opportunities for that reflection or study which create true science?

The traveller is too much exhausted in warm countries, too distracted in those temperate regions favourable to active life, and his faculties are too much benumbed in the colder regions, to enable him to devote himself to minute researches with the lens or the microscope, or even to sketch or properly describe that which he has gathered. He sees, in passing, a crowd of things, but he can scarcely ever stop to enter into details, especially of those that come in rapid succession. Rarely can he see the fruit and flower of a species at the same time, and it is quite impossible for him to study their complete development during the whole year. The notes taken by the most intelligent naturalist are so affected by these fatal circumstances, that it is seldom they add anything to that which a dried specimen can teach the sedentary botanist.

It is horticulture, then, which brings before us a multitude of exotic plants in a condition best adapted for study. Thanks to the variety of species it accumulates and successfully cultivates, the botanist can investigate the most difficult questions, and pursue his researches in families whose genera are not indigenous in Europe. In the herbarium, more minute observations can be made than is generally supposed; nevertheless, for certain researches, it is absolutely necessary to have the living plant, particularly for those relating to relative disposition, the origin and development of the several organs, as well as for studying the curious phenomena of fertilisation, the movements and direction of the stem, leaves, and parts of the flowers. Horticulture has done much to advance the progress of physiological botany, but it still has much to do. The most remarkable experiments of physiologists — viz., those of Hales, Duhamel, Knight—have been made in gardens. Also, the long series of experiments of the younger Gaertner, and, more recently, of M. Naudin, on hybridisation, which relate to the cardinal subject of the species. As much may be said of the numerous trials which are made, in horticultural establishments, to obtain new races or varieties. These have a great scientific importance, and it is undoubtedly the horticulturists who are the teachers of botanists on these subjects.

It appears to me, however, that gardens can be made still more useful in carrying out physiological researches. For instance: there is much yet to be learnt on the mode of action of heat, light, and electricity upon vegetation. I pointed out many of these deficiencies in 1855, in my "Géographie Botanique Raisonnée."* Ten years later, Mr. Julius Sachs, in his recently published and valuable work on physiological botany,+ points out much the same deficiencies, notwithstanding that some progress has been made in these matters. The evil consists in this, that when it is desired to observe the action of temperature, either fixed or varied, mean or extreme, or the effect of light, it is exceedingly difficult, and sometimes impossible, when observations are made in the usual manner, to eliminate the effects of the constant variations of heat and light. In the laboratory it is possible to operate under more exactly defined conditions, but they are rarely sufficiently persistent; and the observer is led into error by growing plants in too contracted a space, either in tubes or bell-glasses. This last objection is apparent when it is wished to ascertain the influence of the gases diffused in the atmosphere around plants, or that of the plants themselves upon the atmosphere.

Place plants under a receiver, they are no longer in a natural condition; leave them in the open air, and the winds and currents, produced at each moment of the day by the tem-

* Pages 46, 49, 57, and 1346.

+ "Handbuch der experimental-physiologie der pflanzen," 1 vol. in 8vo. Leipsig. 1865.

perature, disperse the gaseous bodies in the atmosphere. Every one is aware of the numerous discussions concerning the more or less pernicious influence of the gases given off from certain manufactories. The ruin now of a manufacturer, now of a horticulturist, may result from the declaration of an expert; hence, it is incumbent on scientific men not to pronounce on these delicate questions without substantial proof.

With a view to these researches, of which I merely point out the general nature, but which are immensely varied in details, I lately put this question*—"Could not experimental greenhouses be built, in which the temperature might be regulated for a prolonged time, and be either fixed, constant or variable, according to the wish of the observer?" My question passed unnoticed in a voluminous work where, in truth, it was but an accessory. I renew it now in the presence of an assembly admirably qualified to solve it. I should like, were it possible, to have a greenhouse placed in some large horticultural establishment or botanic garden, under the direction of some ingenious and accurate physiologist, and adapted to experiments on vegetable physiology; and this is, within a little, my idea of such a construction:

The building should be sheltered from all external variations of temperature; to effect which, I imagine it should be in a great measure below the level of the ground. I would have it built of thick brickwork, in the form of a vault. The upper convexity, which would rise above the ground, should have two openings—one exposed to the south, the other to the north—in order to receive the direct rays of the sun or diffused light. These apertures should each be closed by two very transparent glass windows, hermetically fixed. Besides which, there should be, on the outside, means of excluding the light, in order to obtain complete darkness, and to diminish the influence of the variations of temperature when light was not required. By sinking it in the ground, by the thickness of its walls, and by the covering of its exterior surfaces with straw, mats, &c., the same fixed degree of temperature could be obtained as in a cellar. The vaulted building should have an underground communication with a chamber containing the heating and the electrical apparatus. The entrance into the experimental hothouse should be through a passage closed by a series of successive doors. The temperature should be regulated by metallic conductors, heated or cooled at a distance. Engineers have already devised means by which the temperature of a room, acting on a valve, regulates the entry or exit of a certain amount of air, so that the heat regulates itself.† Use could be made of such an apparatus when necessary.

Obviously, with a hothouse thus constructed, the growth of plants could be followed from their germination to the ripening of their seeds, under the influence of a temperature and an amount of light perfectly definite in intensity. It could then be ascertained how heat acts during the successive phases from sowing to germination, from germination to flowering, and from this on to the ripening of the seed. For different species various curves could be constructed to express the action of heat on each function, and of which there are already some in illustration of the most simple phenomena, such as germination,* the growth of stems, and the course of the sap in the interior of certain cells.† We should be able to fix a great number of those minima and maxima of temperature which limit physiological phenomena. Indeed, a question more complicated might be investigated, towards the solution of which science has already made some advances—namely, that of the action of variable temperature; and it might be seen if, as appears to be the case, these temperatures are sometimes beneficial, at other times injurious, according to the species, the function investigated, and the range of temperature. The action of light on vegetation has given rise to the most ingenious experiments. Unfortunately, these experiments have sometimes ended in contradictory and uncertain results. The best ascertained facts are, the importance of sunlight for the development of the green colouring matter, the decomposition of carbonic acid gas by the foliage, and certain phenomena relating to the direction or position of stems and leaves. There remains much yet to learn upon the effect of diffused light, the combination of time and light, and the relative importance of light and heat. Does a prolonged light of several days or weeks, such as occurs in the Polar Regions, produce in exhalation of oxygen, and in the fixing of green matter, as much effect as the light distributed from twelve to twelve hours, as at the Equator? No one knows. In this case, as for temperature, curves should be constructed, showing the increasing or diminishing action of light on the performance of each function; and as the electric light resembles that of the sun, we

* "Géographie Botanique," 1855, pages 49 and 1846.

† See the electric apparatus of M. Carbonnier, exhibited at Chiswick in 1857, figured in the "Flore des Serres et Jardins," vol. xii. Miscell. p. 184.

* Germination under different degrees of constant heat, by Alph. de Candolle, in the "Bibliothèque Universelle de Genève" (Archives des Sciences), November, 1865.

† If the curves have not been constructed, the data for their construction are, at least, dispersed throughout our books. I will cite, for instance, the growth of a scape of Dasylirion, as observed by M. Ed. Morren ("Belgique Horticole," 1865, p. 322). The figures there given are not favourable to the accepted notion, that the growth of tissues is more active by night than by day.

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could in our experimental hothouse submit vegetation to a continued light.*

A building such as I propose would allow of light being passed through coloured glasses or coloured solutions, and so prove the effect of the different visible or invisible rays which enter into the composition of sunlight. For the sake of exactness nothing is superior to the decomposition of the luminous rays by a prism, and the fixing the rays by means of a heliostat. Nevertheless, a judicious selection of colouring matters, and a logical method of performing our experiments, will lead to good results. I will give as proof, that the recent most careful experiments concerning the action of various rays upon the production of oxygen by leaves, and upon the production of the green colouring matter, have only confirmed the discoveries made in 1836, without either prism or heliostat, by Professor Daubeny,† from which it appears that the most luminous rays have the most power, next to them the hottest rays, and lastly those called chemical.

Dr. Gardner in 1843, Mr. Draper immediately after, and Dr. C. M. Guillemin in 1857,‡ corroborated by means of the prism and the heliostat the discovery of Dr. Daubeny, which negatived the opinions prevalent since the time of Senebier and Tessier, and which were the result of erroneous experiments. It was difficult to believe that the most refrangible rays—violet for instance, which acts the most on metallic bodies—as in photometrical operations, should be precisely those which have least effect in decomposing the carbonic acid gas in plants, and have the least effect over the green matter in leaves. Notwithstanding the confirmation of all the experiments made by Dr. Daubeny, when repeated by numerous physicists and by more accurate methods, the old opinions, appearing more probable, still influenced many minds,§ till Mr. Julius Sachs, in a series of very important experiments again affirmed the truth.* It is really the yellow and orange rays that have the most power, and the blue and violet rays the least, in the phenomena of vegetable chemistry; contrary to that which occurs in mineral chemistry, at least in the case of chloride of silver. The least refrangible rays, such as orange and yellow, have also the twofold and contrary property, such as pertains also to white light, and which produces the green colouring matter of leaves or bleaches them, according to its intensity. It is these, also, which change the colouring matter of flowers when it has been dissolved in water or alcohol.† Those rays called chemical, such as violet, and the invisible rays beyond violet, according to recent experiments, confirmatory of those of ancient authors—those of Sebastian Poggioli, in 1817, and of C. M. Guillemin—have but one single well-ascertained effect, that of favouring the bending of the stem towards the quarter from which they come more decidedly than do other rays; yet that is an effect perhaps more negative than positive, if the flexure proceeds, as many still believe, from what is going on on the side least exposed to the light.‡

The effect upon vegetation of the non-visible calorific rays at the other extremity of the spectrum have been but little studied. According to the experiments we have on this subject, they would appear to have but little power over any of the functions; but it would be worth while to investigate further the calorific regions of the spectrum by employing Dr. Tyndall's process—that is, by means of iodine dissolved in bisulphide of carbon, which permits no trace of visible light to pass.

How interesting it would be to make all these laboratory experiments on a large scale! Instead of looking into small cases, or into a small apparatus held in the hand, and in which the plants cannot be well seen, the observer would himself be inside the apparatus, and could arrange the plants as desired. He might observe several species at the same time, plants of all habits, climbing plants, sensitive plants, those with coloured

* The apparatus which produces the most persistent and vivid light is the magneto-electric machine, based on the development of induction by magnetism, as discovered by the illustrious Faraday. The galvanic pile is replaced by a steam-engine of low power, which sets in motion a wheel furnished with magnets ("Bibl. Univ. de Genève, Archives Scientif., 1861, v. 10, p. 160."). The working of this machine is inexpensive; but unfortunately, the magnets are very costly. This system has already been applied to two lighthouses—that at the South Foreland, and to that of the "Société l'Alliance," at Havre—in consequence of the experiments of MM. E. Becquerel and Tresca.

† Daubeny, "Philos. Trans.," 1836, part 1.

‡ Dr. Gardner, "Edinb. Phil. Mag.," 1844, extract in French in "La Biblioth. Univ. de Genève," February, 1844; Draper, "Edinb. Phil. Mag.," September, 1844, extract ib., 1844, vol. 54; Guillemin. (C. M.), "Ann. Sc. Nat.," 1857, ser. 4, vol. 7, p. 154.

§ As a proof of the persistence of the old opinion, I will quote a phrase of Professor Tyndall's in his most clear and interesting treatise "On Radiation," (London, 1865), p. 6:—"In consequence of their chemical energy, these ultra-violet rays are of the utmost importance to the organic world." I do not know whether the author had in view the influence of the chemical rays over the animal kingdom; but according to certain passages of Mr. Sachs, I doubt if they have more power over animals than they have over plants; but Professor Tyndall did not concern himself with these questions, he was content to explain admirably the physical nature of the various rays.

* The researches of Mr. Sachs first appeared in the "Botanische Zeitung;" they are collected and condensed in the remarkable volume called "Handbuch der Physiologischen Botanik," vol. 4, Leipsig, 1865, p. 1 to 46.

† Sir John Herschell, "Edinb. Philos. Journ.," January, 1843.

‡ The rather confused and questionable explanations, founded on the notions of Dutrochet, of the existence of a deoxidising power on the brightest side, clash with the fact that the blue, indigo, and violet rays, the least powerful for deoxidising tissues, are the most powerful in causing them to bend.

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foliage, as well as ordinary plants. The experiment might be prolonged as long as desirable, and, probably, unlooked-for results would occur as to the form or colour of the organs, particularly the leaves.

Permit me to recall on this subject an experiment made in 1853 by Professor Von Martius.* It will interest horticulturists now that plants with coloured foliage are becoming more and more fashionable. M. Von Martius placed some plants of Amaranthus tricolor for two months under glasses of various colours. Under the yellow glass the varied tints of the leaves were all preserved. The red glass rather impeded the development of the leaves, and produced, at the base of the limb, yellow instead of green; in the middle of the upper surface, yellow instead of reddish-brown; and below, a red spot instead of purplish-red. With the blue glasses, which allowed some green and yellow to pass, that which was red or yellow in the leaf had spread, so that there only remained a green border or edge. Under the nearly pure violet glasses, the foliage became almost uniformly green. Thus, by means of coloured glasses, provided they are not yellow, horticulturists may hope to obtain at least temporary effects, as to the colouring of variegated foliage.

The action of electricity on vegetation is so doubtful, so difficult to experiment upon, that I dare hardly mention it; but it can easily be understood how a building constructed as proposed might facilitate experiments on this subject. Respecting the action of plants on the surrounding air, and the influence of a certain composition of the atmosphere upon vegetation, there would be by these means a large field open for experiments. Nothing would be easier than to create in the experimental hothouse an atmosphere charged with noxious gas, and to ascertain the exact degree of its action by day and by night. An atmosphere of carbonic acid gas might also be created, such as is supposed to have existed in the coal period. Then it might be seen to what extent our present vegetation would take an excess of carbon from the air, and if its general existence were inconvenienced by it. Then might be ascertained what tribes of plants could bear this condition, and what other families could not have existed, supposing the air had formerly had a very large proportion of carbonic acid gas.

Until horticulture can supply physiology with such convenient means of experiment, it, in the meantime, advances descriptive botany by the valuable publications it issues. The greater part of the old works with plates, such as "Hortus Eystettensis," "Hortus Elthamensis," &c.; also those of Ventenat, Cels, Redouté, &c.; the "Salictum" and "Pinetum" of the Duke of Bedford; and, more recently, the "Rhododendrons of the Himalaya," by Dr. Hooker; the works of Bateman, Pescatore, Reichenbach, on Orchids; and many others I could name, would never have been published had there not been rich amateurs either to edit or to buy them.

It is horticulture that has given us the longest series of illustrated journals that have ever been published; and here I must do justice especially to the English horticulturists. No doubt the science of our time requires a larger amount of analytical details than is contained in the plates of the "Botanical Magazine," "Botanical Register," "Andrews' Repository," "Loddige's Botanical Cabinet," "Sweet's British Flower Garden," "Paxton's Magazine and Flower Garden," and other English journals; but what a number of forms are thus fixed by the engravings in these books, and what a fund of valuable documents for consultation they afford! One cannot fail to admire the "Botanical Magazine," commenced in 1793, continued from month to month with an exemplary regularity, and which is now at its 5580th plate. Not only has it always represented rare and new species, but it has ever been conducted on a simple and uniform plan, which renders it convenient to consult.

The series of plates is unique from the very beginning. Each plate has its number, and each article of letter-press refers only to one plate, by which means the quotations from the work are rendered brief and clear. Many editors have not understood the advantage of this simple arrangement. They have varied their titles, their series, their pagings; they have affixed to their plates numbers, then letters, then nothing at all; the end of which is (and this ought to serve as a warning for the future), that the more they have altered and complicated the form of their journals, the shorter time they have lasted.

How is it that these purely bibliographical details cause in us such sad recollections? Of the men just mentioned, who have rendered such eminent service to botany and horticulture, England has lost three during the year 1865—Sir Joseph Paxton, Dr. Lindley, and Sir William Jackson Hooker.* I should certainly fail in what is expected of me if I did not express, in the name of the foreigners attending this meeting, our deep regret at such serious losses. We know them all by their writings, and many amongst us have known personally the distinguished men I have mentioned. Their names follow us at each step in this the scene of their labours. If we admire the boldness of construction

* "Gelehrte Anzeige," München, 2 Dec., 1853.

* Since these lines were in the printer's hand British science has sustained a severe loss in the death of the truly amiable and learned Professor W. Harvey, of Dublin, so well known by his works on Algæ, and on the Botany of South Africa. I cannot refrain from expressing our sense of this great bereavement.

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of the iron domes that characterise modern buildings, we think of the Crystal Palace, of Chatsworth, and of the humble gardener who became a great architect. If we visit the beautiful establishment at Kew, we see everywhere around us proofs of the indefatigable activity of Sir William Hooker. Lastly, if we ask the origin of the garden of the Royal Horticultural Society at Kensington, we are told that it is only a development of that at Chiswick, where Lindley stood preeminent by his knowledge and his energy; and of that Society where botanists of my age found in their youth such valuable encouragement in their studies.

The names of Sir William Hooker and of Dr. Lindley, thanks to their special works, will ever remain distinguished in science. These two botanists have, moreover, been directors of horticultural journals, and of great horticultural establishments, and since their influence has been so fully acknowledged by practical men, I shall have little trouble in showing that science is as useful to horticulturists as horticulture is to botanists, and this will form the second part of my discourse.

Secondly.—The Advantage of Botany to Horticulture.—The principles of vegetable physiology are what horticulturists and agriculturists usually study in books on botany. They do not always find direct answers to their questions; but they can draw from them certain rules, certain ways of experimentalising and reasoning, which save them from falling into many errors. Should some ridiculous idea be promulgated by some ignoramus or charlatan, it is by an appeal to the general rules of physiology that a practical man may at once reject them, or at least hold them in distrust. On the contrary, innovations, if in harmony with the general principles of the science, may be, and I will even say, ought to be readily accepted.

Do not let us put too much faith in the lucky results of experiments made absolutely by chance. It is with some of these experiments as with dreams and presentiments—if they come true once in a thousand times they are talked about, otherwise they are passed over and forgotten. Besides, it must be said, men nearly always are guided by theories; but the theories of the ignorant are often absurd and without foundation, whilst those of educated men are based on probabilities, or on an accumulation of facts.

Conjointly with physiology, botanical geography shows the distribution of plants all over the globe, their struggle with the elements, their migrations, and already raises a portion of the veil which covers the obscurity of their origin. All this ought to offer a real interest to horticulturists. We are beginning to have the power of expressing in figures the effect of each climate upon vegetation; consequently the possibility of a given species enduring the mean or extreme climatal conditions of that country to which it is desired to introduce it. Already we can show, in the clearest manner, the analogy between the vegetation and climate of certain regions widely separated the one from the other, and point out in which cases new attempts at cultivation should be tried or where they should be discouraged. A celebrated geologist was able to say beforehand, There is gold in such a part of New Holland; and gold was found there. We can only say, the Olive tree and the Cork Oak will succeed in Australia; the eastern and temperate region of the United States is favourable to the growth of Chinese plants, more particularly to that of Tea; and we can assert that that part of America included between San Francisco and the Oregon territory will, one day, supply wines as varied and as excellent as those European ones produced between Portugal and the Rhine.

It is a singular fact that the two principal beverages of the civilised world, wine and tea, which produce similar stimulating effects, but which to a certain extent are the substitutes one for the other in different countries, present also in the mode of cultivating them the most marked resemblances and differences. The Vine and the Tea-plant succeed on stony, barren hill sides, of which they sometimes increase the value a hundredfold. According to the exposure, the soil, the cultivation and manner of preparing the produce, wine and tea are obtained of unquestionable excellence; whilst the neighbouring crops, but a short distance off, may be more or less ordinary in quality. The two shrubs require a temperate climate, but the Vine needs heat and no rain during summer, whilst the Tea-plant requires rain and but little summer heat; the result of which is, that these two species are almost geographically incompatible. Vine-growing countries will never produce tea, and *vice versâ*.

But, you will say, these examples belong rather to agriculture, and concern neither botany nor gardens. I maintain the contrary. It is science, in the present day, which points out what plants to cultivate, and into what countries to introduce them. Horticulture makes the trial with infinite pains. If successful, the young plants are submitted to the less careful treatment of agriculture. Before the happy introduction of Cinchonas into British and Dutch India could be effected, botanists were required to collect, distinguish, and carefully describe the various species of American Cinchonas; horticulturists were then called on to make cuttings, gather the seeds, raise the young plants, transport and establish them in another part of the world; and so at last they were passed over to the care of the agriculturist. The Coffee plant did not spread gradually from Arabia to India, from India to Java; nor was it the American colonists who bought it from its original

country to their *fazendas* or *haciendas*. The shrub was first described by botanists, and was afterwards introduced by the Dutch into a garden at Batavia; from thence it was taken to the Botanical Garden at Amsterdam, from whence a specimen was sent to the king of France in 1714. De Clieu, a naval officer, transplanted it from the garden at Paris to the French colonies in America. A multitude of such instances might be named. In the present day science has progressed, practical men avail themselves of it, governments and nations have abandoned those mistaken ideas in accordance with which it was supposed that a cultivation advantageous to one country was injurious to others. Hence we may hope to see, before long, useful species planted in all regions where they can thrive, to the great advantage of mankind in general.

One of the most evident effects of science has been to create in the horticultural public a taste for varied and rare forms. Formerly in gardens there were only to be found certain kinds of plants which dated back to the time of the Crusades, or even of the Romans. The discovery of the New World did not produce a change in proportion to its importance; perhaps because horticulturists did not travel enough, or acquaint themselves with those countries whose species were most suitable for cultivation in Europe. Botanists, fortunately, were more ambitious. Their collectors were numerous and daring. They enriched their herbaria with an infinitude of new forms, and published works upon exotic plants, such as those of Hernandez, Rumphius, Sloane, &c. The immense variety in the forms of plants was thenceforth recognised, and in point of taste the elegant simplicity of the primitive flowers was able to vie with the gaudiness of the double ones. Then ceased the reign of Tulips and Pæonies in flower gardens. Curiosity, that great incentive to all science, having penetrated horticulture, the change in gardens became rapid. Instead of a few hundred species such as were cultivated at the commencement of the last century, there are now 20,000 or 30,000 to be found in most of the present catalogues. The single family of Orchids has probably more different representatives in our hothouses than was the case with all the families of plants put together a hundred years ago. Fashion, united to the present curiosity of amateurs, causes, from time to time, old plants to be abandoned for new ones; and thus the entire vegetable kingdom will ultimately pass under the observation of civilised man.

What would horticulturists do, amidst this invasion of thousands of species, had not botanists devised convenient plans of classification and nomenclature? The families, genera, and species, have all been arranged in books, just as the districts, streets, and numbers of the houses are in our great capitals—with this superiority of method, that the form of the objects indicates their place—as if, in looking at a house in a town, one could discover, at a glance, to what street and to what quarter it belonged. The plan of giving a single name to each species besides its generic name, together with the prohibition of changing names without due reason, and of giving the same appellation to two different species, or to two genera, far excels our plan of distinguishing individuals. How much it would simplify our intercourse with men, and facilitate our inquiries, if, in the whole world, the members of one family only bore the same name, and if each individual had but one christian name, differing from those of the other members of his family. Such is, nevertheless, the admirable plan of nomenclature that science has provided for horticulturists, and which they cannot too much appreciate and respect.*

Thirdly.—The Beneficial Effects of the Association of Botany with Horticulture.—The pursuit of horticulture demands books and herbaria, as that of scientific botany requires cultivated living plants. Thence the necessity, which is more and more recognised, of bringing together the materials for comparison in the same town, the same establishment, and even under the same administration, organised so as to facilitate the use of them. How many institutions in Europe, either private or public, would be benefited by this arrangement! How many towns and countries are now deficient—some in libraries, some in herbaria, some in respect to horticulture! Professional men proffer their complaint; let us hope that public opinion may end by listening to them.†

The bringing together the means of study, I have said, is desirable. Not less so is the interchange of ideas and impressions, both of botanists and horticulturists. Each of these classes must clearly have distinct characteristics; but the one should be influenced by the other. By these means, some too-retiring dispositions may be brought out, and certain

* Two years ago I made a request to the Fédération des Sociétés d'Horticulture Belges, which appears to have been favourably received, and it may not be useless to repeat it here. It consisted in begging the horticulturists who obtain new varieties not to give them botanical names with a Latin designation, but merely arbitrary names of quite a different nature, in order to avoid confusion and useless researches in books. For example, if they called a Calceolaria Sebastopol, or Triomphe de Gand, every one would understand it meant a garden variety; but if they named it Lindleyi, or mirabilis, the student would take it to be a botanical species, and would search for it in scientific works, or in the Floras of Chili; and botanists, happening perhaps to mistake it, would add it to the end of the genus in their books as a species imperfectly known. The more horticultural names differ from Latin ones, the better it is, unless they can be appended to the scientific nomenclature: as when we say Brassica campestris oleifera, instead of, shortly, Colza.

† The Botanical Gardens at Kew afford a fine example of what should be done, either on a large or a more modest scale, in many towns where the means of study are yet inconvenient or incomplete.

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dormant powers developed. Horticulture, for instance, has a commercial tendency which may be carried too far. Charlatanism may slide in amongst flowers. Botany, on the contrary, is a science, and consequently rests on the investigation of pure and simple truth. A horticulturist who allows himself to be influenced by a scientific spirit, necessarily frees himself from over-selfish tendencies. Natural history, on its side, by reason of the perfection of its method, its nomenclature, and its minute observations, has something technical and dry about it, which contrasts with the grandeur of nature and the sentiment of art. It is for horticulture, combining as it does the planning and the decorations of gardens, to develope the æsthetic faculties of the savant, as of the world in general. A lovely flower, beautiful trees, a splendid floral exhibition, excite a sort of admiration and even enthusiasm, similar to the effects produced by music or painting.

The powers of the German composers of modern days, and those of the Italian painters of the sixteenth century, are justly extolled; but may it not also be said that in point of art they are equalled, in their way, by the beautiful parks of old England? The feeling of harmony in form and colour, is it not also studied in them? The effect of contrast, is it not skilfully managed? The gradual transition from architectural to natural beauties, is it not treated in an admirable manner? Yes; decidedly the English landscape gardeners are poets; they have drawn from the same sources of inspiration as the most national writers of their country, and that source is the appreciation, so universal in England, of the beautiful, in an aspect of nature which is elegant and attractive, though somewhat severe.

Thus, gentlemen, for the development of our talents, as well as for our actual benefit, Art and Science keep pace together. Let us rejoice over their union, rendered conspicuous to-day by this congress of botanists, held in connection with a great floral exhibition; and after these general observations — perhaps rather too protracted—let us enter upon the consideration of those more truly scientific subjects, in which many among you are no doubt disposed to take part.

CALENDAR OF OPERATIONS.

ORCHID-HOUSE.

SHADE, water, and a very humid atmosphere during this their period of active growth, are essential; the Mexican species should, however, have the cooler end of the house.

GREENHOUSE.

Mixed Greenhouse.—Most of the common hardwooded plants should either be removed to a sheltered place out of doors, or to pits; this will make room for Balsams, Fuchsias, Neriums, Crassulas, &c., which, with Geraniums, will make the house gay for a considerable time. *Camellias* should be watched, and, as the growth gets matured, more air must be admitted, accompanied with a larger share of light; this will induce the formation of bloom-buds. If in a house, however, with a south aspect, shading must be resorted to during bright sunshine. Syringe as usual. *Cinerarias.*—If sufficient seed has been saved, cut down all that have not been already so treated, and stand them in a cool north aspect. A little very fine soil should be placed round the old stools to encourage the young shoots that break from the bottom to root. Save seed for winter blooming. *Heaths and Epacrises.*—Many kinds may now be transferred to pits and frames, where they will thrive better, during the summer months shading them from the hot sun; any done blooming should be cut back slightly, to insure a bushy habit, and kept in a shady place till they commence to grow. Removing the young and early-blooming stock to frames will permit plants in the Heath-house to stand thin, which will be much to their advantage. Shading and watering as before.

CONSERVATORY AND SHOW-HOUSE.

The conservatory should now be kept thin of extra plants, to allow of the free growth of the proper inmates, which will require air plentifully. Water inside borders freely. The regulation of climbers should take place occasionally, allowing them, however, to grow in natural form as much as possible. A north house is at this season the best structure for showing plants in bloom.

FORCING.

Vines.—When the early Grapes are cut, apply the syringe, especially if red spider is abundant; and give the same attention to preserving the foliage, preceding the ripening of the crop. Stop and tie-in the late Vines, and proceed with thinning as before advised; inside borders will require water oftener. *Peaches.*—Suspend a netting underneath the Peaches, &c., to catch the fruit, should any fall between the periods of gathering. It is better to look them over frequently, as they should not be allowed to hang on the tree till they get so ripe. *Pines.*—Shade slightly in very bright weather; water, and often, now they are swelling off, diminishing it as the fruit approaches ripeness. Give air liberally, and syringe once or twice daily, according to the state of the weather. Repot succession plants, and allow more room for them, as they will now grow fast. *Melons.*—Earth up successional

crops, and train and stop, as the vines advance; give less water to the first crops as the fruit gets ripe. Shading with some kinds of glass is absolutely necessary, or the plants will suffer. Sow for the autumn crops. Cold frames, now emptied of their winter stock, may be successfully used in growing Balsams, and other annuals, Fuchsias, &c., or late crops of Cucumbers and Melons.

KITCHEN GARDEN.

Sow the various vegetables required for succession; and attend to the requirements of those progressing. Water Cauliflower, Spinach, Lettuce, &c., freely in dry weather, to promote succulency. Do not cut Asparagus-beds too much after the middle of the month. Plant out early Celery in rich trenches, and water well; earth up Potatoes, and thin out other root crops.

HARDY FRUIT.

Nail in the young shoots when sufficiently advanced; and follow up the war against the green and black fly; diluted tobacco-water is the best remedy, if clean water fail.

FLOWER GARDEN AND SHRUBBERY.

Neatness is the great point to be attended to, now that the principal planting out for the season is finished. Keep the grass of the lawn and the gravel walks in the best trim by often mowing and sweeping the former, and well rolling the latter, which should be fresh surfaced if necessary. Attend to watering the newly planted stuff in dry weather, and make up failures from the reserve. A few annuals should now be sown for an October bloom. Look to trellis-plants, and tie or otherwise secure them from blowing about; tall-growing herbaceous plants will likewise require stakes. *Roses* are now showing their blossoms, which will be much improved by liquid manuring; mulching, too, in dry seasons is very beneficial. If the preservation of the early flowers is desirable, the Rose maggot must be closely looked after; the green fly, too, should be kept down, and where mildew shows itself, first syringe with tobacco-water for green fly, and then dust with sulphur vivum; a tin pepper-box is a cheap and efficient duster. Roses in pots will require attention in watering; the syringe is best if clear rain water is at hand, and the blossoms not too much expanded.

FLORIST'S FLOWERS.

Auriculas.—There will be but very little to do this month beyond keeping the plants clean, both of green fly and decayed foliage. The plants should not be crowded where they stand on a north border, or be allowed to have too much wet. *Carnations and Picotees.*—A very important operation to the exhibitor—viz., disbudding, will have to be attended to this month. Go over the whole stock once a-week, removing such side buds as are forward enough, and which it is necessary to displace. Two, with the centre bud, are a full number for any plant to carry. If blooms are required large for the purpose of exhibition, a less number will be sufficient. They should not be disbudded to their fullest extent on the first time of going over them, as some of the buds may fail. Keep down green fly by brushing the points of the shoots with weak tobacco water and pure water alternately to cleanse them. As the blooming shoots grow very fast it is necessary to go over the plants daily to see that the bast that supports them to the sticks is loose, and to give them fresh ties. *Dahlias.*—The ground having been prepared as directed, these should be planted out about 5 feet apart; 5 feet 6 inches will not be too much from row to row, for the strong-growing kinds. Use good rich soil, mixed with a little leaf mould to turn them out in, this will give them a good start. Secure the plants to stakes when planted out. Dahlias suffer more from the first rough weather after planting out than when they become a little hardened; therefore, care should be taken to protect them as much as possible. Neither slugs nor snails will be very plentiful after so much dry weather, but they should be looked after near hedges on damp mornings. Commence trapping earwigs as soon as the plants are turned out; if mild and dry, water overhead every evening. *Hollyhocks.*—Secure these with strong stakes driven a considerable distance into the ground, mulch them with partly rotten manure, and keep them well watered. Side shoots should be taken for cuttings when ready, as the Hollyhock strikes freely at any season with proper management. A large stock can only be procured by commencing early, and continuing to propagate throughout the season. *Pansies.*—Continue to put in cuttings largely: many plants die off in July, if the weather is unfavourable; if a young stock is provided, this loss will not be felt. Sulphur the plants if mildew should appear; save seed from the best kinds, those with smooth stout petals and well-defined colours. *Pelargoniums.*—June is the best month to judge of the quality of Pelargoniums generally, but a few kinds are best in May. There is little to do this month, further than to prolong the bloom by careful shading, watering, and keeping the bees out of the house. Seedlings will be blooming towards the end of the month, and should be carefully watched, noticing their defects, to prevent the trouble of growing too many kinds the second year. It is necessary to grow them two seasons to finally ascertain the improvement on existing varieties. Fancy varieties should be propagated this month. These should be struck in a cold frame. If allowed to flower long before cutting down they are not so easily struck. *Pinks.*—Water freely if the weather should be dry. Commence propagating towards the end of the month. Pinks strike very freely under small glasses, on a raised hotbed. Care should be taken that the heat is not strong. *Tulips.*—Take the canvas off, and allow them to have all the weather.

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Bohemian Black Bigarreau.

CHROMO LITHOGRAPHED BY F. WALLER. 18 HATTON GARDEN.

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CHROMO-LITHOGRAPHED BY F. WALLER, 18, HATTON GARDEN.

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BOHEMIAN BLACK BIGARREAU.

WITH AN ILLUSTRATION.

THE illustration we this month present to our readers is one in which Mrs. Dix has faithfully represented one of the largest and finest of our Black Heart class of Cherries. It is a variety that was introduced by Mr. Rivers, of Sawbridgeworth, under the name of Bigarreau Radowesnitzer, a name the correct pronunciation of which must in no small degree prove a stumblingblock to English gardeners; and we have therefore rendered it into English by calling it Bohemian Black Bigarreau, in allusion to the country whence it is said to have its origin. Whether we regard this variety as to its size, flavour, or earliness, it is equally valuable. It ripens early in July, and is of the largest size, of a roundish heart-shape, very even and regular in its outline; skin shining, and jet black. The characteristically short stalk is very stout, and dark green. Flesh quite black, firm, but not so firm and crackling as Bigarreaux generally are, but juicy, richly flavoured, and delicious.

We would recommend this to be grown in every collection.

BIGNONIA CAPREOLATA.

WHAT a glorious climber this Bignonia is where plenty of head room is allowed; it forms a most gorgeous object when in bloom. A plant in the conservatory at this place, and reaching the top of the house (about 20 feet), was this season one mass of bloom from the floor to the roof. It is planted out permanently in one corner, contiguous to the hot-water pipes, and in this position it luxuriates amazingly. It requires but a small amount of attention. After blooming there should be a partial thinning out of the weak and unsightly growths; we never tie it, but allow the shoots to hang gracefully down. An occasional liberal watering and a good syringing is the only treatment which it receives.

Wrotham Park. JOHN EDLINGTON.

STATE OF THE FRUIT CROPS IN NORTH NOTTS IN JUNE, 1866.

MAY has been the most disastrous month to the fruit crops that I ever remember here. With the exception of Apricots, temporarily covered here with glass lights, all wall fruit was much injured by the frost on the morning of the 30th of April. In the first week of May the frosty mornings again damaged the blossoms of hardy fruit trees, especially small bush fruit where not protected, and the crops are very thinly set. In orchards, where the fruit trees are large, the foliage protected the blossoms more from the dry east winds and frost, and better crops may be found; but they are everywhere partial, especially Apples, Plums, and Cherries. Small hardy fruits, such as Currants, Gooseberries, and Raspberries, are abundant, and where Strawberries were well watered in the dry weather last summer, they promise to produce abundantly this year, the rain just coming in time to swell them off. The show of blossoms this spring in gardens and orchards was finer than usual, owing to the warm autumn of last year ripening the wood so well; but now the effects of the ungenial May are apparent everywhere, except where the trees were well sheltered.

All gardeners who had stiff soils to manage found it impossible to get seeds to vegetate this May, for such soils were saturated before the dry weather set

in, and they afterwards got baked as hard as brick. Broccoli, Turnips, and other small seeds were sown three times here in May in the usual quarters; but none of the seed vegetated thickly enough to furnish a crop, and I had to depend on some sown on a warm border and daily watered. Tender vegetables, such as early Potatoes, Asparagus, and Kidney Beans, were cut down three times in the month, for even on the 30th 1° of frost was registered, and the Fern in the park was quite blackened in low situations.

This May will have given many a check to those who are in the practice of bedding-out too early, for they will see that nothing is gained by too early planting. In fact, the time will come when no summer-bedding plants will be put out before the beginning or middle of June by all gardeners who can find sufficient room to harden their stock off in sunken pits or sheltered places, and when they plant-out the beds will be so furnished that due effect will be given to flower gardens at once, without the risk of the plants being starved with cold in May. I had such glorious masses of colour this April and May from clumps of Silene pendula, Forget-me-nots, Aubrietias, Pansies, and other spring bedders, that I intend for the future to depend upon them more, and only bed-out the summer things when well hardened off and full of flower.

Welbeck. WILLIAM TILLERY.

AQUILEGIA ALPINA.

THE Alpine Columbine is a most beautiful hardy perennial, from 12 to 18 inches high. It grows freely in any soil or situation, but does best in a sandy loam. It has very large purplish blue flowers with white centres. It is a very showy, striking object when in flower during May and June. It should be grown in all mixed borders. It is easily increased either by seeds or dividing the old roots. The seed should be sown in an open bed or border in August or September. In the spring following the plants will appear above ground; they should be kept clear of weeds. In May they should be transplanted into beds at 9 or 10 inches distance every way. In the autumn they should be removed into the flower-borders, and in the following season they will flower beautifully.

Stourton. M. SAUL.

NOTES AT THE SHOWS.

THE Special Prize Show at South Kensington, on the 14th of June, though small in extent, was of a very interesting character. These "special prizes" were offered by certain gentlemen in order to bring out their "specialities." The President of the Royal Horticultural Society offered four prizes, the first for "the best nine plants sent out in 1865," which was awarded to Messrs. Veitch, but which many thought should have gone to Mr. W. Bull; the second for "the best nine plants sent out in 1864-5," which was taken by Mr. B. S. Williams, Messrs. Veitch being second; the third prize for "thirty-six Roses, single trusses, including varieties sent out in 1864-5;" and the fourth for "the best collection of Roses sent out in 1864-5." I do not attempt to canvass the merits of the subjects that competed for the prizes for new plants. There is no lack of new plants—from far and near they come, and I almost fancy sometimes the aim of our new-plant exhibitors seems to be, not who shall have the best, but who shall have the greatest quantity. I think also that while the really good flowering plants are few, fine-foliaged plants are plentiful, and certainly many of them are very beautiful.

The cut Roses were scarcely up to the mark. How could they be? The

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weather had been dull, dry, very gloomy, and often very cold. The prize for thirty-six flowers was taken by Mr. Turner, Messrs. Paul & Son being second; but in the class for the collection this order was reversed. Mr. Turner had good flowers of that fine dark Rose, Charles Lefebvre; also of Olivier Delhomme, Leopold Hausburg; Joseph Fiala, a new purplish-crimson flower of considerable merit; Mdlle. A. Halphen, a fine shade of crimson, a really notable flower; and Doctor Andry, bright rosy crimson. Mr. Turner had a boxful of Madame Victor Verdier, in colour a rich glowing crimson. Messrs. Paul & Son also had a boxful of their new Rose, Princess Mary of Cambridge, a pale rose flower, the colour of which is very pleasing; and good blooms of Prince Camille de Rohan, Madame Furtado, Exposition de Brie, violet-shaded dark crimson, and others.

For Mr. W. Wilson Saunders' prize for "Officinal and Medicinal Plants," Mr. Bull was the only competitor. His collection is very varied and interesting, and now pretty well known to the frequenters of the London exhibitions. Mr. B. S. Williams secured, with some excellent specimens, Lady Dorothy Nevill's prize for the best ten exotic Ferns, Mr. Bull being second. Mr. Williams also received Major Trevor Clarke's prize for Bromeliads.

In my opinion, the plants exhibited in competition for the ladies' prizes, offered by the proprietors of the *Gardeners' Chronicle*, were greatly in advance of anything before produced. Mrs. Dombrain, of Deal, was deservedly awarded the first prize for a capital specimen of Adiantum cuneatum, evidencing careful and successful culture. It was said to have been kept in an ordinary sitting-room for the space of two years. The second prize was awarded to Mrs. Marshall, of Enfield, and the third to Miss Fisher, of the City Road, for specimens of the Hare's-foot Fern, Davallia canariensis. The former had been kept in a sitting-room five years, and the latter nine years. There were as many as eighteen plants produced, generally in very good condition. Mrs. Hooke, of Fulham, had a plant of Cypripedium barbatum majus with six flowers on it, a very healthy and clean specimen, said to have been in a drawing-room seven weeks. From Lady A. Norman, of Campden Hill, Kensington, came plants of Maurandya Barclayana, and the Variegated Japanese Honeysuckle (Lonicera aureo-reticulata), growing together over a balloon-shaped trellis. The plants looked drawn, as if they had come out of a stove. Another Japanese Honeysuckle, from Mrs. Wyatt, of Upper Tooting, growing on a flat trellis, was a very creditable specimen of in-door culture.

A magnificent Verbena, from Messrs. Perkins & Sons of Coventry, named Shakspeare, was much admired. The flowers are large and very stout; colour, bright scarlet shaded with crimson, round a conspicuous lemon eye. It will be a very fine exhibition variety.

A collection of double Pyrethrums (cut blooms) was shown by Mr. John Salter; they were of remarkable beauty, some of the colours being very striking. It was truly said that they "anticipated" the Asters of a month or two later. They are greatly superior to the Anemone-flowered Chrysanthemums, and some resembled the Quilled Asters. Any one desirous of growing them should have the following: Prince of Wales, Rubra plena, Madame Bellard, Carminata plena, Rosa plena, Fulgens plenissima, Imbricata plena, Jessica, and Herman Stenger. A collection of cut Pæonies, from Mr. Salter, were also of a very interesting character, and invaluable for shrubbery borders.

Mr. Turner had a boxful of his new early forcing Pink Rubens, very dwarf and free-blooming, and exquisitely fragrant; and Messrs. G. Jackman & Son sent plants of their varieties of Clematis—viz., Rubella, Alexandra, Velutina purpurea, Magnifica, and Jackmannii.

Floral Committee, June 19.—Again lots of new plants, and all looking

so good as to be apparently worthy of certificates. A fine dark-coloured upright-growing Gloxinia, from Messrs. Veitch & Sons, named Prince Teck, was greatly admired, and received a first-class certificate. Messrs. Downie, Laird, & Laing, had a pale violet-coloured bedding Pansy, named Imperial Blue, which greatly resembles a very showy-looking variety Mr. Fleming has been using this season at Cliveden, and glorious it looks in that wonderful spring flower garden. A first-class certificate was awarded to Mr. Turner for a fine seedling Pink, Princess of Wales, a heavily-laced flower of large size, and with plenty of substance. Lots of Zonale Pelargoniums were produced by Mr. Bull; variegated varieties by Messrs. Smith and E. G. Henderson & Co. To the latter firm was awarded a first-class certificate for Pink Stella, a rosy pink Nosegay variety; and the same award was made to Mr. Turner for Duchess of Sutherland, colour rosy-crimson puce, flushed with violet, medium trusses, but produced in great profusion, short stiff footstalks, and good habit, also a Nosegay variety. Some of the variegated kinds from Messrs. F. & A. Smith were very handsomely marked.

Some fine seedling Pelargoniums came from Messrs. Foster, Hoyle, and Turner. First-class certificates were awarded to the following:—Perfection (Foster), rosy pink, pencilled with bright crimson, dark top petals with fiery margin and edging of pale pink, a delicate and beautiful flower, very free; Archbishop (Hoyle), soft rose, with dark crimson top petals blotched with black, a large and finely-formed flower; and Milton (Foster), a large, stout, and well-formed flower, lower petals warm rose pencilled and blotched with crimson, dark top petals edged with rose, white throat. A second-class certificate was awarded to Beauty of Windsor (Foster), carmine rose pencilled with crimson, dark top petals, white throat, a good-sized flower. Negress was commended for its singular dark colour, and conspicuous white throat. Other good flowers were Shakspeare (Foster), lilac, pencilled and blotched with crimson, white centre, and very dark top petals. It is one of those stained flowers I hardly like, and one of the best yet seen. King of Flowers (Foster), is of a bright carmine shade faintly suffused with crimson, white throat surrounded with a purple glow, a medium-sized flower, of good form, and very free. Betrothed (Foster), is a large, stout, and well-formed flower, of a pleasing shade of rose, with dark top petals, very free; Congress (Hoyle), bright carmine crimson, with dark top petals, margined with fiery crimson, white centre, very showy and novel; Gold Button (Hoyle), carmine, blotched with crimson, white throat, dark top petals margined with bright crimson; and Mongini (Hoyle), rose, pencilled with crimson, dark top petals margined with rose, very free.

Quo.

THE TEMPERATURE OF WATER, AND ITS EFFECTS UPON PLANT-CULTIVATION.

[The following is an abstract of an interesting paper on this subject presented by Mr. Anderson, of Meadow Bank, near Glasgow, at the late Botanical Congress.]

Cultivators in general are not over-zealous in taking cognisance of the relative temperature that exists between water and air in any given house, and yet upon such, in a great measure, depends the exuberance of the plants. Many scarcely recognise the importance of making adequate provision for water heated, at least, to the same temperature as the atmosphere. It is not sufficient to have cisterns dug out under the ground floor, and made water tight by the various methods in practice, to produce a temperature sufficiently high. Unless the hot-water pipes actually run through or under

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them, I have found by repeated experiments, especially in tropical houses, that a difference ranging from 5° to 10°, Fahrenheit's scale, exists between the temperature of the air and that of the water. I can scarcely conceive anything more prejudicial in the whole routine of plant culture, having a tendency to chill and paralyse root-action, than frequent waterings at such a dissimilar temperature. It is bad enough under any circumstances, but when we come to practise upon valuable tropical Orchids, the injury becomes, after a time, irreparable.

Why should this be so? Is it owing to the conservative tendencies of an initiatory practice? Numbers, certainly, do seem disinclined to move out of the groove into which they settled down in the early days of their practice, while others have been bold enough to strike out of the beaten course, and ofttimes, too, not without success. Curiously enough, it has long been a custom to furnish bottom heat for Pines, and even Melons and Cucumbers, arranging the beds in such a way as to be from 5° to 10° higher than that of the surface, and good results have invariably followed. Tepid water has always been in request by our foremost Pine-growers, and formed one of the recommendations in every calendar of operations. Indeed, were any one to question the merits of the system as a whole, a hundred voices at least would be lifted up against him. Innovations make slow progress; for it is only a modern practice looking into the geothermal state of Vine-borders, and furnishing either by chambers or aërated passages an auxiliary means of preserving and dispensing heat to the roots. No one, unless he be a bigot, will venture to challenge or gainsay the good to be derived by the adoption of such a system. Any little dispute that has arisen as to the efficacy of heated Vine-borders is traceable to individuals resident in localities having subsoils such as sand or chalk, which have greater power of retaining heat and parting with superfluous moisture than other subsoils, and therefore have less need of artificial appliances. And how, I would ask, is it that the practice is not universally carried out? why is it not followed to a legitimate issue? If we have unmistakable proof of an improved cultivation in every advance made in accordance with a system, we may be certain that it is an innovation of the right stamp, worthy of imitation and adoption.

So far as the practical gardener is concerned, there are no plants under cultivation that merit a more undivided attention, whether we look to their variety, the geographical range over which they extend, or above and beyond all, their monetary value, than the Orchidaceæ. Every little scrap of information from reliable sources is gathered up and noted down with an avidity only known to Orchidophilists and Orchidculturists. The physiological structure of the plants is so peculiar, so different to that of every other form of vegetation, as to render them pointedly interesting to every naturalist. That they are capable of resisting far more fatigue than any other plants is well known, and yet it requires the highest degree of cultural skill to maintain a collection generally in a healthy state. They are also liable to diseases quite foreign to other plants, and, in this respect, approach a step closer to the animal kingdom.

In the course of experience and experiment over a large and varied collection, I have found tangible benefits to accrue from studying the thermal condition of the compost in which the plants grow.

I may state that it is no haphazard conjecture that I am about to propound, but a simple statement of facts evolved during a ten-years practice upon an Orchidaceous collection. In the former period, although I managed to grow the temperate species quite satisfactorily enough, I could not manage the great subdivision of Vandeæ at all well. I found, especially in

the case of Saccolabiums, Phalænopsids, and some of the more tender Aërides, the most discomfiting opposition. The fine fleshy roots which had been emitted during the growing season, and which had been introduced into the pots, pans, or baskets, as the case might be, at the season of repotting, were on the next examination a mass of rottenness; in many instances very few of the roots under ground escaped unscathed. What was the consequence? The lower leaves became yellow, dropped off one by one, and left me and the plant at the end of the season in pretty much the same condition as at the beginning. This was mortifying enough, especially as the compost was physically and chemically good enough, as I have ultimately proved. Wherein, then, lay the defect? It was in the watering of the plants with water taken from an underground cistern, which a series of thermometrical experiments have shown me was cooler by 7° to 10° than the atmosphere. "Necessity is the mother of invention," and when I began to reflect upon the advantages of bottom heat to Pines, Vines, and stove plants, I set about effecting a reformation. I shrugged my shoulders and shook my head at the very idea of a tan or sand-bed in an Orchid-house, as being a resort for an army of cockroaches (Blatta orientalis) that could never be successfully overcome, and that would be a plague among the plants scarcely less devastating than the locusts of old. I resolved that the water should be increased in temperature, and with that view ordered hot water to be drawn from the boilers and mixed with the colder water drawn from the cistern until it was never less than 10°—it might be sometimes so high as 20°—warmer than the atmosphere of the house about to be watered. The effect, in a few months, quite exceeded my most sanguine anticipations. The vigour of the plants increased, the quality and quantity of the bloom was greatly superior, and when the season of repotting came round, the roots embedded in the compost, instead of being all but universally putrid, were generally healthy. I have now, for upwards of two years, carried out the above plan in integrity, not only in tropical but in "cool" Orchid-houses, with marked success. The impregnation of iron in the water drawn from the boilers, instead of being attended with any depreciating influence as some would have us take upon credit, on the contrary appears to be productive of good.

Every gardener is a meteorologist, almost by compulsion; and yet there are probably not half a dozen cultivators in England that ever took the trouble to gauge the temperature of water about to be used either out of the water-pot or the syringe. Men in charge, under the principal, although obedient, are not always reflective and painstaking, and unless positive orders be given that water at such a temperature *must* be used, a good deal will be distributed at random.

In order that there may be no misunderstanding or doubt as to the theory I wish to inculcate and to be applied, allow me to reiterate that all pot plants as a rule ought to have water at the root at least 5° warmer than the atmosphere in which they live, and that tropical Orchids will prosper all the better with a minimum variation of 10°—that is to say, if all other conditions of treatment are skilfully met, a corresponding degree of vigour will be maintained. Much the best system I have seen in practice, recognising the value of bottom heat, without plunging material, is that applied in one of Mr. Day's tropical houses at Tottenham. Along the centre of the house, instead of so many tiers of four-inch piping, there is a trough-like cistern, narrow at bottom and widening out towards top, somewhat in the form of a feeding-box for horses on a large scale. This is connected with the boiler by pipes in the usual way, and circulation is constantly taking place. The top is so arranged as to be open or shut at pleasure, and by this means an excellent steady heat, either moist or dry, is

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dispersed over the roots of such plants as are immediately over its surface. I need scarcely say that Mr. Day's Saccolabiums, Aërides, and such like plants, in a medium of this kind, under Mr. Stone's cultural care, are indicative of high health and vigour.

Lastly, we all know and fear the ravages of spot; we look with the greatest concern upon the insidious way in which it works itself over a collection of Orchideæ, and ofttimes disfigures for life the appearance of many valuable plants. I unhesitatingly pronounce that there seems to be no absolute cure for some of the more aggravated forms of it; but beyond question skilful treatment will in a great measure prevent it. There are a variety of conditions that must be observed before any cultivator can command success; but in all my experience I have never been able to count upon it with the same certainty—I have never been able to claim immunity from the inroads of spot in the same satisfactory manner, until after I had reduced the "watering" theory to every-day practice.

REMARKS ON FRUIT TREE CULTURE.—No. 11.

To preserve the vitality of the central part of fruit trees should be a very great object with the cultivator. How often may we see in places where the practice of pruning and management is not understood, the greater portion of the bearing wood and fruit at the extremities of the branches of even large trees, while the centre of the tree is bare of any growing wood, consisting only of naked branches, fully exposed, be it observed, to the full glare of the sun, of the effects of which exposure I shall have something more to say presently. Just now I wish to impress on the mind of the young practitioner the necessity of commencing early to lay the foundation for keeping the centre well filled, by cherishing those extra shoots mentioned in my last article, as enabling the operator to thin out the extremities occasionally, and keep his trees at home, as many old hands call it, meaning thereby well furnished from the centre to the circumference, not only with wood, but with foliage, to shelter it from the evil effects which often result from the fierce rays of the sun striking on its exposed surface when nailed close to a wall. This important subject is one which is worthy of a little extra attention; we have to remember that a Peach tree against a wall is in an artificial condition, both as to treatment and position. We do not anywhere find that healthy trees growing in a natural state, and with plenty of room for development, ever grow in such a manner as to expose their stems to the full action of the sun's rays in summer. On the contrary, it would appear that the natural tendency of growth is to spread the branches out and clothe them with foliage, so that the powerful rays of the sun are broken, and the stems kept comparatively shaded; not that I would infer from this that these effects are ever injurious in the case of trees standing in the open ground, only that the natural tendency of growth would appear to be to shade the stems by foliage. The case, however, is different with trees trained against a wall. There the rays of the sun are intercepted and intensified, and hence it is that I consider it so very important that young wood should be encouraged to grow in the centre of trained trees, and more particularly of Peaches and Nectarines, in order that the larger shoots, which carry the extreme bearing wood, may be kept shaded by the foliage. I am well convinced that injurious effects do often arise from the action of a powerful hot sun striking upon such shoots when fully exposed and bare of protecting foliage. This is often evidenced by the upper sides of such shoots having the bark contracted, split across, indurated or unnaturally hardened, and sometimes killed, by which means the flow of the sap and consequent enlargement of the

wood are principally confined to the under sides of the shoots. These effects, however, are not immediately perceptible or injurious, because it is a work of time to develope them; but I am well assured that they so far interfere with the organisation of the tree that in the end they tend greatly to weaken the power of growth, and to assist, in combination with other causes, in producing that debility of constitution which we see in wall trees.

The effects above referred to may certainly be averted by an early attention to the preservation in the centre of young wood, which may be laid in pretty freely among the large stems without any particular reference to the production of fruit from that particular part. Here and there a shoot may be left for that purpose; but the greater portion will require to be cut back to two or three buds every season, for if allowed to bear fruit they will soon become too much debilitated to push out buds. Let me here observe that the necessity for this mode of treating that particular part of the tree will only arise after the lapse of some years from the starting point; but the foundation must be laid early by the reservation of more shoots about that part of the tree than will be required for the production of fruit; all the rest of the tree, however, will require to be manipulated with that object in view, and, in case of accident, the reserved shoots in the centre will be found doubly useful to cut back to.

Standard Peaches and Nectarines, when trained against a wall, cannot have the stems protected by foliage, and hence it is good practice to cover them with finely twisted bands of hay or straw, under which treatment they will grow to a much greater size than when fully exposed, which I consider a convincing proof that the practice is beneficial.

Redleaf. JOHN COX.

EUCHARIS AMAZONICA.

AMONG stove plants Eucharis amazonica is certainly unrivalled for elegance and beauty, when unfolding its charming snow-white flowers, which are produced on scapes about 18 inches high, bearing from three to seven blooms, which are well elevated above the handsome, dark green, ovate-lanceolate foliage. The individual flowers, which are circular in outline, and measure from 3 to 5 inches in diameter, consist of three petals and three sepals of a cordate-acuminate form, from which the stamens, six in number, arise, together with an additional series of barren stamens forming a corona or cup, which is exquisitely tinted internally with green. The cultivation of this lovely plant is very simple, and, with a good supply of bulbs, when properly managed, it may be had in bloom all the year around; in fact, no well-regulated garden establishment ought at any time to be without plentiful supplies of its charming flowers, which, besides being highly ornamental in the stove, are splendid when cut for bouquets, &c., and are universal favourites with ladies, by whom they are often used in ornamenting the hair, their waxy texture admirably adapting them for withstanding the hot and parching atmosphere of the ball-room.

Let us suppose we commence the first month of the year with a plant, or a dozen of plants, in bloom, which we have procured on our last visit to the nursery, where we were greatly charmed with its beauty and suitableness for decorative purposes, as we saw it there grouped with Poinsettia pulcherrima (another valuable winter-blooming plant, the brilliant scarlet bracts of which contrast well with the snow-white Eucharis). So long as the plants continue in flower water freely, but as the blossoms decay remove to a cooler part of the stove, and allow them gradually to go to rest. It must be borne in mind, however, that the foliage is evergreen, and will not bear being kept dust-dry. After remaining dormant for six or seven weeks, a few of the bulbs may be

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shaken out and repotted singly into six or seven-inch pots (where more than one is wanted, the size must be regulated according to the number), using rich fibrous peat, with about one-third leaf-mould and silver sand intermixed. After potting, remove to the warmest part of the house, and plunge in a bottom heat of about 70°, where they will soon begin to produce new leaves, and must then be abundantly supplied with water. As they advance in growth, great care must also be taken to keep the atmosphere of the house charged with moisture, in order to promote the full development of the foliage and maturity of the bulbs, for on this point chiefly depends success in flowering. When the plants have arrived at this stage they should be removed to an intermediate-house for some time, and be finally introduced into a brisk heat, when they will produce their beautiful flower-scapes in abundance, and amply repay the cultivator for the care and attention that has been bestowed on them. The remainder of the bulbs should be started in rotation and treated in a similar manner, and by these means a constant succession of flowering plants may be had the whole season. It also succeeds well when planted out in a stove along with Ferns, Begonias, and other ornamental-foliaged plants. A few years ago I had occasion to plant a large specimen in this manner in the month of February, and towards the end of July it produced seventeen stems, on which I counted at one time upwards of fifty fully expanded flowers. I need scarcely say it was admired by all who saw it. Propagation may be easily effected by means of offsets, which are produced abundantly.

J. T.—(*West of Scotland Horticultural Magazine.*)

CULTURE OF THE PEACH AND NECTARINE.

(*Concluded from page* 122.)

Well-managed trees should never present a crowded appearance of shoots in summer, and no part of the tree should have any shoots stronger than the rest; should any such appear their vigour should be arrested by stopping, though I always consider that a misfortune. I like to see every young shoot of equal strength. A young shoot in the right place may appear in early summer weak and unpromising; but, if all the rest that are useless are removed, the shoots in the right place will quickly gain strength. Let the cultivator never run away with the idea, that by retaining a greater number of young shoots he is thereby multiplying the chances of having fruitful branches. It is often a fatal and always a mistaken notion. Adhere to the rule, that a few shoots well ripened are far more sure to produce good fruit than when a larger number are crowded in between the main branches. Should any of the trees grow too strong, and make long watery shoots, the best way to check such is to lift the trees early in the autumn and replant them; that will be sure to moderate their growth and cause them to produce more kindly wood. In performing this operation, great care must be taken not to injure or mutilate the roots. Open a trench at the very extremity of the roots and undermine them carefully, picking out the soil from amongst them with a three-pronged fork; replant the tree immediately exactly the same depth it was before, unless by some means or other too much soil had accumulated above the roots; then plant them shallower—that is, cover the roots with a less thickness of soil.

Nailing.—Where this mode of fastening the branches to the wall is followed, the operator must be exceedingly careful not to wound them with the hammer-head. Sometimes the hammer will slip off the nail-head and hit the branch instead, abrasing the bark at least, and thereby often bringing on a

gummy state. To prevent such a misfortune, he should always place his fingers round the nail and hit them instead of the shoot. However, in many good gardens the walls are wired at from 6 to 8 inches apart, and the shoots are tied to these wires. This, in some respects, is a better plan, because the ties do not harbour insects like the common cloth shreds, and there is no danger of bruising the shoots with the hammer; but there is another danger, and that is, if the shoots are tied-in tight at first, the shoots swell and increase in thickness, and become strangled at that part: hence, at pruning-time, they are apt to break at that part, and thus disappoint the hope of fruit from such branches. Let the grower, then, beware of this evil, and watch over the ties; and when they are approaching to being too tight, cut them, and re-tie them more loosely.

As soon in summer as the young shoots have grown long enough, let them be secured to the wall to prevent their being blown off by the wind. This is of consequence, as, after the superfluous shoots are rubbed off, the loss of any branch required is difficult to be repaired. Therefore, secure such shoots as soon as they can be handled; place them in the most open space, so that every leaf may have its full share of light, yet not shade the fruit-bearing shoots. I consider here and there a part of the wall should even be unshaded, to gather heat from the rays of the sun: that heat helps to ripen the fruit and the wood also.

Summer Treatment.—This season commences when the trees are coming into bloom, and ends when the leaves are fallen from the trees. The attention they require consists in, first, protecting the bloom; next, disbudding; third, thinning the fruit; fourth, watering; and lastly, destruction of insects and mildew.

Protection.—The shelters used for this purpose are various. Some use Spruce Fir branches tied to the main shoots, others use branches of Beech with the dry leaves on; but these shelters are of but little use, and sometimes injurious. What is needed is a shelter from frost only; and, therefore, a contrivance whereby the trees may be covered at night, and exposed during the day, is far superior to a fixed one like the branches of trees. The best kind I ever used was made as follows:—A long board projecting from the top of the wall over the trees was fixed first, then to it a sufficient number of pulleys, through each of which a rope was threaded; one end was fastened to a pole on which was nailed a length of canvas, or netting, wide enough to cover the wall when let down. Another pole was fixed on posts near to the ground about 2 feet from the wall. To this pole the other edge of the canvas or netting was fixed. To keep the covering from the wall some rough larch poles were reared up at 6 or 8 feet apart. During the day, in mild weather, this shelter was let down, resting upon the lower pole by means of a rope, and early in the afternoon it was drawn up, thus covering the trees completely. By this contrivance we sheltered the blossoms from frost by night, and exposed them to the warm sun during the day. In another place we used frames of wood the height of the wall, made about 3 feet wide. These had thin canvas nailed to them, and when in use rested under a piece of wood nailed to the top of the wall, and on another laid on the ground. The frames were light, and easily moved. A young man in half an hour could remove them from a long wall in the morning, and lay them down in the walk on two pieces of wood to keep them from the damp, and replace them in the afternoon in the same time. This mode is rather troublesome, and, perhaps, expensive at first; but with care the frames last many years, and the protection they afford is most effective. The late Mr. Errington always advocated the putting on of these shelters early, for the purpose of retarding the blossoms from expanding too early whenever a warm

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February or March occurred. Of course, when put up for that purpose, the sun is the object to be sheltered from: hence the protectors should be kept on during the day. No doubt other modes of shelter might be devised; but the object should be kept in view of not retaining them on in mild weather during the day, nor too late in the season.

Disbudding.—I have already incidentally mentioned this part of the summer treatment under the head of training, I need only repeat here that disbudding can hardly be done too soon. If the superfluous shoots are left on too long they absorb that nutriment which should be given to the needful shoots, and also the scars that are made in removing them are injurious to the branches. The leading shoots must be left on to draw up the sap to feed the fruit; but they should have the end nipped off when about 8 inches to a foot in length. The shoots for bearing the fruit the following season should be retained their full length, and as soon as they are long enough should be nailed in. Give them as much space as possible, so that every leaf will have its due share of light. In this place let me warn the young grower against laying in too many summer shoots. Those growers that do so are under the erroneous idea that thereby they multiply the chances of a crop of fruit, whilst, in fact, the effect is the reverse. Crowded shoots injure each other; the leaves cannot perform their functions; the buds are all, or nearly all, wood-buds; and for want of light and air the wood in the autumn is crude and unripe; all these fatal evils may be avoided by keeping the trees thin of wood during the summer, and also keeping the shoots retained regularly nailed or tied close to the wall. Be careful, however, not to enclose the shoots too tightly with the shreds or string.

Thinning the Fruit.—The Peach tree when healthy, and its annual shoots properly ripened, is very fruitful, and will set, as it is called, more fruit than will expand to full size and perfection: hence the advantage of thinning. The number of fruit that it may be advisable to leave on to ripen depends in some measure on the vigour of the tree. If very strong and healthy, the final thinning may leave a fruit to every 6 inches square of the wall that the tree may cover; if moderately strong, extend the space for each fruit to 9 inches square; and if weak, thin them to a foot square. These distances may not be kept mathematically correct, for the fruit may be rather thicker in one part of the tree than another; but the number of fruit that is left should be such as would, if regularly and exactly placed, amount to the same quantity. At the first thinning, which should take place as soon as the fruit are the size of a boy's marble, take away all that are of a bad form or are badly placed. At the second thinning remove such as are near the base of the bearing-shoot or near the top of it; and after the fruit has stoned thin them according to the above-mentioned distance, for then it may be considered certain that no more will drop off naturally.

Watering.—In dry seasons a good soaking of soft rain or river water will be necessary in order to swell off the fruit to the highest perfection. Some years ago I visited a place in North Wales where there was a Peach-wall of considerable length. A new gardener whom I knew well had been engaged there. The owner told him that the Peaches and Nectarines were fruitful enough, but were always small and deficient in juice and flavour. His new gardener told him he could remedy that, providing the trees were left to his judgment to do what he thought proper to them. To this reasonable proposition the gentleman (who, by-the-by, was an amateur gardener himself, and perhaps had previously interfered too much), consented. The gardener then at the thinning time took away what he thought necessary; and when those that he left had stoned he opened hollows in front of each tree, and filled these

hollows with water to the depth of 2 or 3 inches. The hollows or basins were filled up after the water had sunk into the soil. This was done three times during the time the fruit was swelling, and the effect was very remarkable—the fruit was above the ordinary size, and was well coloured and well flavoured. The water was withheld as soon as the fruit began to show signs of ripening, and was no more applied that season. The young wood was stronger, was well set with blossom-buds, and, as I was informed, the trees did equally well the following year. This example is, I think, worthy of imitation in all cases where the trees are rather weak, the border well drained, and where fine fruit is desired.

Insects.—The insects that prey upon the Peach during the growing period are the red spider and the green fly; woodlice and wasps also often feed upon the fruit when ripening. The red spider may be got rid of by frequent severe syringings. If very numerous, mix in the water some sulphur, which is also a remedy for mildew wherever it occurs. This remedy should be applied early in the season, but when the fruit is ripening it should be withheld, or it would disfigure the fruit; but if either the red spider or the mildew prevail after the fruit is gathered, then repeat the remedy till both are extirpated. The green fly is easily got rid of by syringing the trees once or twice with tobacco water. Woodlice harbour in old walls, and the only remedy is pointing-up the nail or other holes at the time the trees are loosened from the walls for pruning in the autumn. Considerable numbers may, however, be trapped during summer in hollow bean-stalks stuck behind the branches and emptied every day by blowing down them into a vessel containing very hot water. When wasps are very abundant set traps for them. Wide-mouthed bottles half-filled with some sweet liquor are excellent traps, as are also double hand-glasses, the under one set on four half-bricks, one at each corner, with a hole or two made at the top, and then place the other hand-glass on the top of the first. Put a plate containing sweet liquor on the ground under the hand-glasses; this will attract the wasps, and when satiated they will fly upwards, and make their way into the upper glass, where they will soon exhaust themselves, and finally perish. If the wall is of great length, and wasps prevail very much, then these traps should be placed in a row in front of the wall at 20 or 30 feet apart. Of course the traps will catch not only the wasps that prey upon the Peaches, but also those that would otherwise attack any other kind of fruit in the garden.

Winter Treatment.—This season commences as soon as the leaves have fallen. If the wood has been properly ripened the leaves will naturally fall off with the first frost. Collect them as soon as they fall and convey them to the rubbish-heap at once. Then loosen the trees from the wall, take off all the shreds, burn such as are decayed, and let such as are fit to be used again be put into boiling water to destroy the insects and their eggs. The nails should be carefully drawn out of the wall, and in order to do so without drawing away the mortar give each nail a gentle tap with the hammer. To cleanse them from dirt and rust throw them into a vessel containing hot oil, and let them steep for a few hours. Then take them out and put a few at a time in a rough, coarse bag, and shake them well backwards and forwards. This operation will cleanse and keep them from rusting, and will destroy insect life thoroughly.

The trees should be drawn from the wall, and the wall itself should be thoroughly cleansed, and repaired if necessary. If the red spider has prevailed during the summer it will be advisable to make up a mixture of sulphur and soft soap, and paint the wall with it, rubbing it well into the crevices and nail-holes. The trees also should be painted over with this mixture, moistening every part of the trees, especially on the side of the branches next the wall.

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When all this has been completed, then fasten the trees to the wall by a few of the main branches only. This is to secure them from being blown about by the wind till the pruning time. I prefer the end of February or the first week in March for that operation. Where the walls are extensive the pruning may be done sooner, in order to get through the work. The fruit-bearing branches may be shortened-in, but care must be taken that a wood-bud is next the cut. Those that bore fruit the preceding year must be cut out entirely, excepting the leading shoot at the end of a main branch. As soon as a tree is pruned it should be trained and nailed to the wall, or if the wall is wired it should be tied to the wires. Then, when all the trees are gone through, the winter work on the Peach and Nectarine trees is completed.

Diseases.—The only disease that I know of is that named gumming. It is a kind of gangrene, which first appears like a swelling, it then bursts and the gum exudes. If the border is made properly and the wood well ripened this disease will not appear: hence, if ever symptoms of gum show themselves, the only remedy is to examine the border. If it is wet at the bottom, let it be thoroughly drained; if it is too full of manurial matter, remove that soil entirely and replace it with fresh maiden earth. Then, again, take great care that the branches are not wounded by the hammer or any other instrument.

A.

CARTER'S CHAMPION BROCCOLI.

Of Broccolis that come in for use in April there is no scarcity, but good late kinds are by no means over-plentiful. Having tried most of the sorts that have come out of late years, I can strongly recommend Carter's Champion as an excellent late kind. From plants grown in a warm and forward situation I have this season cut fine heads up to the end of the first week in June. Had the plants been grown on a north border or other late situation, I have no doubt that they would have furnished a supply of good heads until the end of the third week in June, by which time Cauliflowers begin to come in plentifully. In general about the middle of June Cauliflowers begin to come in with us here; sometimes, according to the season, we have them a few days earlier, and, at other times, a few days later. I have never had any other kind so good at so late a season as I had Carter's Champion this season. I have not yet tried Cattell's Eclipse, but, if it be later and better than Champion, it is a very valuable kind indeed.

For April and the early part of May we scarcely require better kinds than Knight's Protecting and Dilcock's Bride Broccoli. What we most need is a Broccoli to come in from the middle of May to the middle of June. Carter's Champion is the best for this season that I have yet met with, but I hope to see something better still.

Stourton. M. Saul.

ON THE DECAY OF APRICOT TREES.

It is well known that the large limbs of Apricot trees often die off, even when they are in leaf, and, perhaps, full of young fruit, while the other branches are healthy. This unfortunate decay occurs more or less according to the situation of the trees and the severity of the winters; but although much attention has been paid to the subject, the cause is not well understood. I have long been of opinion that the loss of the branches is the effect of frozen juice bursting the sap-vessels; and such may be the case with many other kinds of trees and shrubs which are killed in winter, especially tender ones, of

which the sap-vessels are adapted to warmer climates: hence the difficulty of acclimatising plants.

Some kinds of Apricot are more hardy than others. The Breda and Turkey are less liable to decay than Anson's, or the Moorpark, which is said to have been introduced by Admiral Anson. I wish, however, to notice, that the gangrene in the inner bark is the effect of ruptured sap-vessels. In general the decay begins near the clefts of the branches, close to the main stems, and in time checks the supplies from the roots, it matters not whether the trees are young or old. Perhaps the evil may in some measure be prevented by keeping the outer bark smooth to throw off the wet, and by protecting the suspected parts with fern during winter.

J. Wighton.

REMARKS ON THE GENUS MYOSOTIS.

All the perennial species of this genus are very beautiful, and well deserve to be extensively cultivated. They grow best in moist situations, or by the edges of ponds or ditches. They may also be grown in any place in the garden not too hot or dry; or they may be cultivated in pots. They are easily increased by division of the roots, and by seeds. The seed should be sown in the autumn upon an open bed or border of light earth. In the spring the plants should be thinned where they are too close. If the ground where the plants are to be grown be kept clear of weeds and the seeds be permitted to scatter, an abundance of plants will spring up without further trouble. Large masses near walks through plantations are very effective. In such places they require no attention further than keeping them clear of weeds. The following are very beautiful:—

Myosotis azorica.—This is a very fine hardy species from the Azores, with heads of rich purple, changing to deep blue. It is found in damp ravines, and generally near waterfalls. Well worthy of extensive cultivation.

Myosotis montana (the Spring Forget-me-not).—This is a very fine species from Norway and Switzerland. It blooms with the melting snow, frequently with the Snowdrop, Aconite, &c. The flowers are larger and brighter than those of the Wood Forget-me-not (M. sylvatica). It should be grown extensively.

Myosotis palustris.—A very valuable species on account of its long-continuing autumn bloom.

Myosotis rupicola (the Perennial Alpine Forget-me-not).—This is a very beautiful species. Its large heads of deep and brilliant blue, fragrant flowers render it a very striking object. The individual blossoms are nearly circular, and frequently have a yellow eye. It does best in shady fissures, or on ledges with a northern aspect. It blooms late in spring. It should be very largely grown.

Stourton. M. Saul.

ON THE CULTIVATION OF THE FILBERT.

Whatever differences of opinion may exist respecting the management of most of our hardy fruits in regard to the amount of pruning they require, there is no question that the knife, or it may be the saw, is more freely used in the treatment of this tree than in that of any other. It is not too much to say that in the case of the Filbert fully nine-tenths of every year's growth are cut away, and often more than that; and, if we except the Vine when pruned on the spur system, there is certainly no other fruit tree on which the knife

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plays so conspicuous a part. As the Filbert is in general a free and rather fast-growing tree, the abundance of wood to choose from enables the cultivator to select that which is best adapted to give the shape he wants. This is done with so much exactness, that, in a well-managed orchard of this fruit, one tree so much resembles another that the cursory observer might suppose that they had all been turned out of one mould. A glance at the way this is done in Kent, where so many acres are under this crop, will assist the amateur in keeping his trees within reasonable bounds, and also in making them more fruitful than if allowed to grow rampant amongst other trees less vigorous than themselves.

Although occasional plantations of this fruit may be formed on stiff heavy ground, such plots are the exception, for they rarely prosper and are fast disappearing. A dry stony soil, not too shallow, without anything pernicious in the subsoil, is the one the Filbert likes best; and many hundreds of acres of the best plantations in Kent are on the slopes of hills having limestone at no great depth below. Occasionally they are also planted over chalk, but the result is less satisfactory.

Generally speaking the soils which overlie Kentish ragstone, or hassock, a soft stone which will not endure frost, are the best; and in tillage quantities of such stones, as large as a half-brick, are turned up and mixed with the surface soil, presenting anything but an inviting appearance. In such soils both the Filbert and Morello Cherry seem to thrive better than in ground of any other description, and, what is equally important, they bear well also. Such a soil is, of course, a stranger to stagnant water; and though the substratum is hard when first broken up, there is nothing in it pernicious to vegetation, as seeds will vegetate in it soon after being thrown to the top. Being of a half-sandy nature, it may with advantage be used as a fertiliser to soils of a contrary description. All the Filbert plantations are not on soil of the above description, but it is generally admitted that on such the best crops of fruit are produced. The nearer, therefore, that it can be imitated elsewhere, the greater the chance of success.

Situation has also something to do in the matter, and when a choice of this exists the western slope of a hill is the best position; but in the valley of the Medway plantations are formed on all inclinations, dryness of bottom being one of the conditions first of all insisted on, and a soil not by any means meagre in regard to depth is also necessary. The other conditions are all subservient to them. Shelter from very high winds may be useful, but this is of less consequence than for most other fruits; but very exposed places, as the tops of naked hills, are too cold and ungenial, and, though the tree will thrive there, it is seldom fruitful enough to be satisfactory. Though blooming amongst the earliest of all our fruits, the tree is far from being the hardiest. The beautiful little tufts of crimson which form the female or nut-bearing blossom are very sensitive of frost and are often damaged by it. The long green catkins, or male blossoms, which hang all the winter, are hardy enough; but if destroyed before the others make their appearance, the crop, of course, is bad. Generally speaking, however, the well-being of the crop depends on other conditions more than this; and so many things are necessary to perfect success, that the crop of Filberts is, perhaps, more capricious than that of any other fruit, although when good nothing yields a better return. Upwards of a ton weight per acre has been gathered in favourable seasons; but as Filberts are often planted in conjunction with Apples, Pears, and other fruits, the return is limited in consequence of the ground taken up by these. Nevertheless, the cultivator generally favours his Filbert trees if they do well, and the others are cut away.

Ground of the above description is generally trenched, and all hard stones that will do for road-making purposes are taken out; but such soft ones as are of no use and likely to be split up into fragments by the winter's frost are left in. I think about 9*d.* per rod for trenching the ground, and about the same per ton for such useful stones as are taken out, is often paid, and the increased value of the land well repays this outlay. This being done early in the autumn, the young trees are planted as soon as they can be conveniently got in, taking care to do this, if possible, when the ground is dry.

Many growers raise their own plants; in fact, it is common for most Kentish farmers who grow fruit for market to have a nursery where they rear large quantities of Currants, Gooseberries, and the like, as well as graft and propagate Apple and other trees by the hundred. In such places Filbert trees are plentiful enough, and they are raised from suckers, which are produced in great numbers when required, as will be shown hereafter. Small plants having about 10 inches or a foot of clear collar, and then spreading out into branches in all directions, are selected. Assuming that the plantation is intended ultimately for Filberts only, they are planted about 12 feet apart each way if the ground is good; but if not so likely to suit them, 10 feet might be substituted. Generally Currant trees, or it may be Hops, or both, are planted between to occupy the ground while the Filbert is growing, and sometimes standard Apple, Pear, or Plum trees are planted at wider intervals to remain as permanent trees; but this plan has been in a great measure abandoned, and everything is made subordinate to the Filbert when it is intended to have a first-rate plantation.

If the ground at the time of planting has been recently trenched, and much of the subsoil thrown to the top, it would be better to have a little mellow fine earth that has been long exposed to the atmosphere, and to give each tree a spadeful or two to start its roots into. This is frequently done with other fruit trees when it is necessary to plant quickly after trenching. A low-growing crop is sometimes taken off the ground. This, however, will suggest itself to the cultivator; but I have seen plenty of instances where the farmer paid £6 and upwards per acre rent, and where he found it to his advantage to allow the newly-planted trees—Filberts, Gooseberries, or Currants, also Hops—the whole of the ground, occasionally stirring it during the summer, and, of course, keeping all the weeds down. If the intending cultivator thinks he cannot afford Filberts the whole space, let whatever vegetable crop he takes off the ground be kept clear of the Filbert trees, and remove it as early in the autumn as possible. I may also observe, that if Currants or Gooseberries be planted between the Filbert trees, they may be from 5 to 6 feet apart, taking care that those nearest the Filberts are cut away in time to prevent their injuring the more permanent occupiers of the soil.

(*To be continued.*) N. R.

OUR CONTEMPORARIES.

The Botanical Magazine for April contains representations of the following:—

Peperomia marmorata.—A dwarf, branching, stove herbaceous plant, discovered by Mr. Weir, in Southern Brazil. The leaves are ovate-cordate, from 3 to 5 inches long, their upper surface of an opaque dull green, marbled with irregular longitudinal bands of white. This has been frequently shown under the name of Peperomia arifolia, which is, however, a very different plant, having peltate leaves.

Ericinella Mannii.—An Ericaceous plant found by M. Mann, at an elevation

of 10,000 feet, at Fernando Po, and at from 4000 to 11,000 feet on the Cameroon Mountains, where it forms an evergreen bushy erect shrub, sometimes 12 feet high. It resembles a Heath in its general appearance, and has nearly globose dull red flowers at the tips of the branchlets.

Polychilos cornu-cervi.—An Orchid discovered long ago in Moulmein, by Lobb, but which did not reach England alive till 1864, when specimens of it were sent by the Rev. C. S. P. Parish to Messrs. Low. It has the habit of a Phalænopsis, to which, indeed, it is referred by Reichenbach, who is of opinion that the two genera, Polychilos and Phalænopsis, ought to be combined. The flowers are yellowish green barred with reddish brown, and are produced freely during the summer months, with the same treatment as that given to other Indian Orchids.

Tacsonia Van-Volxemii.—" One of the most striking and beautiful plants hitherto introduced into Europe, easy of cultivation, and continuing a considerable time in flower. It promises to rival the Lapageria, and even to eclipse it. The genus to which it belongs inhabits South America, principally the valleys of the Andes, and it is stated in M. Lemaire's 'Jardin Fleuriste,' that this species is a native of the temperate region of the province of Antioquia, in New Grenada, where it is cultivated by the natives." It was introduced into Belgium in 1858, by M. Van Volxem, who found it in a garden at Bogotá, " It succeeds well in a warm greenhouse, and, according to its discoverer, it resists a temperature of the freezing point in its own country." The flowers are from 5 to 7 inches in diameter, have bright red petals, yellowish at the base, and are borne on long, slender, almost capillary stalks of from 10 to 20 inches in length.

Miltonia anceps.—Originally introduced from Brazil by Messrs. Loddiges, but it had disappeared until re-introduced by Messrs. Low & Co., through their collector, Mr. Blunt. The flowers are described as being of an olive colour, with a white lip marked with a few purple streaks and dots.

Mussænda luteola.—Introduced by Captain Grant, the companion of Speke, in his exploration of the head waters of the Nile. It is a small, erect, slender, twiggy shrub with ovate- or oblong- lanceolate leaves, and yellow flowers having a white or yellowish calyx-leaf from one-half to three-quarters of an inch long.

The May Number contains representations of

Cymbidium Hookerianum.—Introduced by Messrs. Veitch through their collector Mr. Lobb, but also found by Dr. Hooker, probably about the same time, in the Sikkim Himalaya. It is an epiphytical species having large flowers borne on an erect scape, but nodding from the point where they are produced. In colour they are of a uniform green, but with a yellowish white lip, of a deeper yellow at the edges, and decorated with rich reddish purple spots. Dr. Hooker is of opinion that it should be regarded rather as a fine variety of Cymbidium giganteum than as a distinct species. It should be grown in a large pot.

Thibaudia coronaria.—Cultivated by Mr. Bateman under the name of Ceratostemma, by which it was sent out by M. Linden, of Brussels, and probably a native of New Grenada or Venezuela. It forms a small, much-branched, rigid shrub, with evergreen, ovate, entire, shining deep green leaves, and nodding dull scarlet tubular flowers, inflated towards their base, and five-angled.

Microcachrys tetragona.—A remarkable Conifer, presenting the unique character of bearing a fleshy brilliantly-coloured cone. It inhabits the tops of the highest mountains of Tasmania, where it forms low straggling bushes. The female cones are ovoid or globular, from one-fourth to one-third of an inch long, translucent, and bright red.

with the young fronds tinged with copper colour; Verschaffeltia splendida, a beautiful Palm; Alternanthera spathulata, a native of Brazil, with red foliage of various shades; Peperomia maculosa, with thick, silvery-veined, concave leaves; Dieffenbachia Weirii, with deep green leaves, conspicuously blotched with pea green; Dracæna nigrescens, with very dark foliage; Bertolonia pubescens, with olive green leaves broadly edged with bright green; a Juniper from the north of China; and Gymnogramma flexuosa, an elegant kind, with a shining black rachis. The second prize, in the same class, added by the Council of the Society, went to Mr. Bull, who exhibited Verschaffeltia splendida, Dracæna nigrescens, the white-variegated variety of Selaginella Martensii; Terminalia elegans, with leaves resembling those of Pavetta borbonica, but trifoliate; Coprosma Baueriana variegata, with obovate leaves variegated with cream-colour; Cycas plumosa, with rush-like foliage; Saurauja sarapigiensis, with handsome leaves having reddish brown midribs; Aucuba japonica fœmina elegans, with the foliage marked with creamy blotches, sometimes occupying three-fourths of the entire leaf; and Asplenium myriophyllum, a slender species, with finely-divided fronds.

Mr. Williams was first for the best nine plants sent out in 1864 and 1865 with Anthurium Scherzerianum and cordifolium or magnificum; variegated Pampas Grass; Calamus Impératrice Marie, a graceful Palm; variegated New Zealand Flax; a good plant of Agave Schidigera; Phalænopsis Lüddemanniana; Dieffenbachia Baraquiniana, and Dracæna Cooperi. Messrs. Veitch were second with Dieffenbachia Weirii; Dracæna nigrescens and Cooperi; Anthurium cordifolium and Scherzerianum; Cypripedium Pearcei, with two blooms, having short tails; Gymnogramma Pearcei, a graceful greenhouse species; Pandanus ornatus, with glossy green leaves varying in intensity of colour according to their age; and Prumnopitys elegans, a Conifer having glossy Yew-like foliage. From Mr. Bull, to whom an extra prize was awarded, came Zamia cycadæfolia, Anthurium cordifolium, Pandanus ornatus, Dracæna Cooperi, Maranta Van den Heckei, handsomely banded with white; Podocarpus macrophyllus variegatus, having dark green leaves variegated with white, intermixed with others wholly white; a large green-leaved female Aucuba; Zalacca Wagneri, and Salpichlæna volubilis, with large, deep green fronds. Prizes for tropical and sub-tropical fruits, Strawberries in pots, and Filmy Ferns, were offered respectively by Mr. W. Wilson Saunders, Dr. Hogg, Mr. G. F. Wilson, and Mr. Alexander Scrutton, but there were no competitors.

An account of the other subjects shown has been given by "Quo" in a previous page.

Royal Botanic Society.—The June Show took place on the 6th, and though so closely following the International there was an air of freshness in the display that could hardly have been expected, and it was, too, well attended by visitors, a point of vital importance in exhibitions of any kind, and especially those which are in a great degree dependant (as horticultural shows are), for their financial success on the fineness of the weather. Stove and greenhouse plants were numerous and fine, though scarcely equal as a whole to what they were in May. Messrs. Peed, J. Wheeler, Donald, Carson, and C. Smith took the chief honours in the Amateurs' classes, and Messrs. Rhodes and Lee in those for Nurserymen. Azaleas were over, and pot Roses not equal to what they were at the previous show; Heaths were numerous and good, and Pelargoniums, as shown by Mr. Turner and Mr. Bailey, magnificent. Some of those from the latter were between 4 and 5 feet across, and exhibited a profusion of bloom that we never remember to have seen before. Nor must Mr. Fraser, of Lea Bridge, be denied his meed of praise, for his plants were excellent, though not coming up to those from Mr. Turner and Mr. Bailey. Of new plants Messrs. Veitch contributed a fine collection, and another came from Mr. Bull. Orchids were not so numerous as usual, and several of them had already done duty at South Kensington. Among them was a new Oncidium, named by M. Reichenbach O. Marshallianum, after Mr. Marshall, of Enfield, by whose gardener, Mr. Wilson, it was shown. The flower measured quite 1½ inch in diameter, and had a clear yellow lip and brown petals and sepals. Fine-foliaged plants and Ferns were well represented in collections from Messrs. Williams, Barnard, Young, of Leigh Park, and Taylor, of Highgate. In Hardy Ferns Messrs. Ivery, as usual, carried all before them.

Of fruit, the most remarkable specimens were the Queen Pine Apples from Mr. Miller, gardener to Lord Craven, Combe Abbey, who was first for that variety with a handsome fruit of 5½ lbs., and he also exhibited half a dozen weighing 4 lbs., 4 lbs. 7 ozs., 4 lbs. 10 ozs., 5 lbs., 5 lbs. 3 ozs., and 5¼ lbs., an excellent proof of good cultivation, for one fine fruit may be more due to chance than to good cultivation, but not so half a dozen from the same garden at one time. Black Hamburgh Grapes, especially those from Mr. Meredith and Mr. Clement, were excellent, and those from other exhibitors were generally very good; so, too, was Black Prince from Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall, and Mr. Meads, Minley Manor, two competitors who always run each other closely for this variety, and who received equal first prizes, but the bunches were not equal to those exhibited by the same growers in former years. Of Muscats

the best came from Mr. Turner, of Slough. Melons, Peaches, Nectarines, and Cherries, though good, were not remarkable.

Crystal Palace Rose Show.—This was held on Saturday, the 23rd, and though the display was more limited than in previous years, it was still very extensive, and despite of the drawbacks of a late season and a severe storm on the previous Thursday, which completely destroyed for exhibition purposes the best blooms of the London growers, the Show as a whole was very good. Notwithstanding the counter-attraction of a Volunteer review in Hyde Park, the attendance of visitors was very large, as may be judged from the fact that up to Friday night six thousand tickets were sold, in addition to which the admissions by season tickets and payment at the doors were very numerous. Owing to the circumstances already adverted to, a large proportion of the blooms were far from perfect, and others, though large, wanted the desirable degree of refinement; but, on the other hand, many were remarkably fine.

Class I. was for ninety-six varieties—a long number, in which only a large grower can hope to compete creditably, and which we imagine might be advantageously reduced to seventy-two, as at the National and Birmingham Rose Shows, still the stands, considering all things, were very good. Mr. Keynes, of Salisbury, in this as in the other Nurserymen's classes, was successful in obtaining the first prize with stands containing, amongst others, Madame Charles Wood, Comtesse de Chabrillant, Cloth of Gold, Xavier Olibo, dark-shaded crimson scarlet, a variety which attracted much attention Pierre Notting, violet-shaded crimson; Marguerite de St. Amand, rose; Triomphe de la Terre des Roses, violet-shaded rose; Triomphe de Rennes; Prince Camille de Rohan; Madame Rivers; America; Maurice Bernardin; Souvenir de William Wood, almost identical in colour with Prince Camille de Rohan; Vicomte Vigier, Gloire de Dijon, Alphonse Belin, bright and lively in colour; Victor Verdier, Mdlle. Bonnaire, white, slightly tinged with pink in the centre, very delicate in colour; Gloire de Vitry, Kate Hausburg, and Maréchal Niel.

From Messrs. Paul & Son came excellent blooms of Charles Lefebvre, Pierre Notting, Maréchal Vaillant, Comtesse de Chabrillant, Mdlle. Marie Rady, François Louvat, Xavier Olibo, Duke of Wellington, Denis Helye, Alphonse Damaizin, Gloire de Dijon, Duc de Rohan, Vicomte Vigier, Alba Rosea, Amiral La Peyrouse, Madame C. Crapelet, Madame C. Joigneux, Madame Caillat, Prince Camille de Rohan, Maurice Bernardin, Charles Wood, Beauty of Waltham, and last and finest of all, Maréchal Niel, a glorious bloom, by far the finest of the many fine blooms exhibited of that beautiful variety. In the stands of Mr. Mitchell, Piltdown Nursery, Maresfield, we remarked John Hopper, very fine; Julie Mansais, a pretty Tea; Madame C. Wood; Hippolyte Flandrin, very large and full; Souvenir d'Elise, Maréchal Niel, Gloire de Dijon, Madame C. Crapelet, Madame Vidot, Caroline de Sansal, Général Jacqueminot, and Madame Rivers. From Mr. Turner, Slough, many of those already named were noticeable; also Leopold Premier, Madame Maurin, Comte Cavour, Duc de Cazes, Madame D. Douville, Princess of Wales, Blairii No. 2, Charles Lefebvre, very fine; and M. Joigneux, dark centre, backed by rosy crimson outer petals, forming a striking contrast.

Awards—first, Mr. Keynes; second, Messrs. Paul & Son: third, Mr. Mitchell; fourth, Mr. Turner; fifth, Messrs. Francis & Co.

Class II., forty-eight varieties, three trusses, generally affords a very effective display, and such was the case here. Mr. Keynes again took the first place with, among others, Victor Verdier, Maréchal Niel, very fine; Madame Sertot, Madame Charles Wood, Madame Moreau, Senateur Vaisse, Pierre Notting, Marguerite de St. Amand, Vicomte Vigier, Victor Verdier, Maurice Bernardin, and Centifolia rosea. From Messrs. Paul & Son, the most remarkable were Maurice Bernardin, Olivier Delhomme, Charles Lefebvre, La Brillante, glowing crimson scarlet; Comtesse de Chabrillant, Prince Camille de Rohan, very fine; Beauty of Waltham, Princess Mary of Cambridge, Madame Rivers, Xavier Olibo, Madame C. Crapelet, Lafontaine, Mathurin Regnier, and splendid trusses of Maréchal Niel. In the trusses from Messrs. Francis, of Hertford, were buds showing prominently above the surface of the stands, thus relieving that flatness which stands of cut blooms usually present.

Awards—first, Mr. Keynes; second, Messrs. Paul & Son; third, Mr. Mitchell; fourth, Mr. Turner; fifth, Messrs. Francis.

In Class III., twenty-four varieties, three trusses, we noticed in the stands of Messrs. Keynes, Turner, Paul & Son, and Fraser, good trusses of many of the varieties shown in the preceding class, Paul Ricaut, Louise de Savoie, Prince Henri de Pays Bas, Anna de Diesbach, Devoniensis, and Charles Lefebvre particularly good.

Awards—first, Mr. Keynes; second, Mr. Turner; third, Messrs. Paul & Son; fourth, Messrs. Francis; fifth, Mr. Fraser.

In Class IV., twenty-four varieties, single trusses, and in Class V., twelve varieties, were fine blooms of Souvenir de Malmaison, Maréchal Niel, Madame Vidot, Devoniensis, Gloire de Dijon, Madame Maurin, Charles Lefebvre, Madame Damaizin, John Hopper, and Mrs. Rivers; also Madame Moreau, Marguerite de St. Amand, Achille Gonod, and Belle Normande, all unusually large, but somewhat rough.

Awards — For twenty-four: first, Mr.

Keynes; second, Mr. Turner; third, Mr. Walker, Thame. For twelve: first, Mr. Keynes; second, Mr. Turner; third, Messrs. Francis; fourth, Mr. Walker.

In Class VI., for thirty-six trusses (Amateurs), Mr. J. T. Hedge, Reed Hall, Colchester, had fine examples of Général Jacqueminot, Le Rhone, Mathurin Regnier, Beauty of Waltham, Cloth of Gold, and Maréchal Niel; and Mr. J. W. Chard, Salisbury, Madame C. Wood in beautiful condition, and John Hopper large and fine. In other stands were very good examples of Madame Victor Verdier, Emile Dulac (beautiful bright rose), Comtesse de Courcy, Triomphe de Caen, Prince Camille de Rohan, Princess of Wales, Madame Bravy, Maurice Bernardin, and Niphetos, the exhibitors being Mr. A. Moffat, gardener to Hon. Mrs. Maynard, Dunmow; Mr. Wright, gardener to Mrs. Ramsden, Twickenham; Dr. Cooper, Slough; and Messrs. Plester, Ingle, Laxton, A. H. Kent, Bristowe, Moore, Marcham, Dennis, Postans, and Hollingworth.

Awards—first, Mr. Hedge; second, Mr. Chard; third, Mr. Moffat; fourth, Mr. Wright; fifth, Dr. Cooper.

In other classes we remarked very good examples of Senateur Vaisse, L'Enfant Trouvé, Charles Lawson, Madame Boll, Pauline Lanzezeur, Le Rhone, Celine Forestier, Comte de Nanteuil, Madame Boutin, Souvenir d'un Ami, Caroline de Sansal, Olivier Delhomme, Madame Vidot, Comtesse de Chabrillant, Charles Lefebvre, Mdlle. Bonnaire, and Maurice Bernardin, and many more might be added if any advantage could result from giving a mere list of names. Taking all circumstances into consideration the amateurs' classes were very creditable.

Awards — For twenty-four: first, Mr. Moffat; second, Mr. Hedge; third, Mr. Chard; fourth, Mr. Stoddart, gardener to J. G. Rebow, Esq., M.P., Colchester; fifth, Mr. Mercer, Staplehurst; extra, Mr. Wright. For eighteen: first, Mr. Hedge; second, Mr. Moffat; third, Mr. Dennis, gardener to H. S. Hayward, Esq., Hurst Green; fourth, Mr. Chard; extra, Mr. Ingle. For twelve: first, Rev. V. Knox Child; second, Mr. Hedge; third, Mr. Ingle; fourth, Mr. Dennis; extra, Mr. W. Lacey, gardener to C. S. Mortimer, Esq., Morden Park.

Baskets or vases of Roses exhibited much sameness, March's stands being, with one exception, employed by all the prizetakers; and the blooms rested on various Ferns at the base, and were interspersed with these in the top dishes. Mr. Ingle, gardener to C. G. Round, Esq., Colchester, was first with an arrangement in which the glass stem was entwined with a variegated Jasmine, and Maidenhair Fern was introduced among the blooms in the top dish. Mr. Hedge was second, and Mr. Marlow, gardener to J. Wigan, Esq., Mortlake, third, both using variegated Japanese Honeysuckle up the stem. Mr. March was fourth with an elegant glass stand, consisting of a dish placed on a silvered glass plateau, and a central column to which three chains were attached; against this column a shoot of Cissus discolor was placed, and round its base Rose blooms. Messrs. Carter & Co. contributed some neat hanging-baskets mossed with Selaginellas, and filled with Roses, Dracænas, and Cordyline indivisa; and hanging-baskets were also shown by Messrs. Cutbush and by the Crystal Palace Company. Those from the latter were of small size, and suitable for placing on a table or similar position; they were made of wickerwork, and the basket was suspended by a wicker chain from a tripod of the same material. Other baskets were supported on small green-painted iron tripods. The most effective exhibition in this way was the Leicester Vase, measuring from 7 to 8 feet in diameter, and formed of iron ribs some inches apart, secured to a central ring; and these being turfed over, the vase was filled with a row of Coleus Verschaffelti, then with Geraniums, Mignonette, and Hydrangeas, with a tall pyramidal Fuchsia in the centre.

Roses in pots were not in the fine condition that they were seen earlier in the season. The best twenty-five came from Messrs. Paul and Son, Mr. Turner being second, and Messrs. Francis third. Messrs. Paul & Son also received a first prize for the best twelve sent out in 1865.

For new Roses Messrs. Paul & Son were first, and Mr. Keynes second; but the varieties were generally not in a condition for their merits to be satisfactorily determined. Maréchal Niel was that which attracted the greatest amount of attention, and never has that variety been so numerously exhibited or so fine. Xavier Olibo, to which allusion has already been made, was also fine; and Souvenir de William Wood very much in the way of Prince Camille de Rohan, seemed a good dark Rose. Madame Victor Verdier was very fine, and of others Frederick Biborel, Pierre Notting, Marguerite de St. Amand, John Keynes, and Monsieur Boncenne were very good.

Among miscellaneous subjects were Variegated Maize and several pretty tricolor-leaved and Zonale Pelargoniums from Messrs. Carter and Co. Messrs. Downie, Laird, & Laing exhibited Wiltshire Lass, a remarkably fine pink variety, with very large trusses; fancy and bedding Pansies, of which Imperial Blue was very attractive; an unnamed Zonale Pelargonium with leaves 5 inches across, pale green, marked with a bronzy zone; and Stanstead Rival, with very large salmon scarlet pips. Mr. T. Smith, Long Wittenham, exhibited a Delphinium, called Smithii, with large deep blue flowers with a white eye; and Mr. S. Brown, Sudbury, Invincible Sweet Pea and some pretty early-flowering Gladioli. The most striking of these were Insignis, rich

salmon, blotched on three petals with bright violet; Eclipse, pink and white; and Incomparabilis, cream and violet crimson.

Gardeners' Royal Benevolent Institution.—The 23rd anniversary meeting was held at the London Tavern on Wednesday, June 27th, Sir Charles Wentworth Dilke, Bart., M.P., presiding. The company, we regretted to see, was not so numerous as usual. Among those present were Professor Bentley, the Rev. Joshua Dix, Dr. Hogg, Messrs. T. Brandreth Gibbs, R. Wrench, G. Child, Bull, Edmonds, Gibson, J. & C. Lee, W. Paul, Turner, Veitch, Williams, Cutbush, &c. The Chairman, after the usual loyal toasts, in proposing "Success to the Institution," announced amidst loud cheers the munificent donation of £1000 made to the funds of the charity out of the surplus proceeds of the International Horticultural Exhibition; and, besides, upwards of £260 was collected at the dinner. Among other toasts were "The Chairman," "The Treasurer," "The Royal Horticultural and Botanic Societies, and the Executive Committee of the International Horticultural Exhibition," coupled with the names of Dr. Hogg, the Rev. Joshua Dix, and Professor Bentley, who severally returned thanks; and "The Nursery and Seed-trade," coupled with the names of Mr. James Veitch and Mr. G. Child. Sir C. Wentworth Dilke announced that Sir Robert Peel would take the chair at the next anniversary.

Fertilisation of Cobæa scandens.—This plant, sown on a hotbed in March and planted out in May against a wall with a south, east, or other warm aspect, only begins to flower in the end of June, a period at which the highest temperatures commence to occur. Notwithstanding these conditions, fertilisation rarely takes place at that period, and this circumstance is to be regretted, because if the first flowers produced seeds these would be under favourable conditions for ripening. It is, however, only about September, when the temperature is comparatively low, that many flowers set and yield seed, and then the season is too far advanced for ripening. From observations which I have continued for three years—viz., from 1862 to 1864, I find that with a temperature of from 77° to 90° the anthers burst and are dried up long before the stigma is ready for the pollen, whilst in September, when the temperature only ranges from 60° to 68°, the organs act in harmony with each other. As fertilisation cannot take place naturally while the temperature is high, as in July and August, and as on the other hand it is desirable to gather the seeds early in the season, artificial fertilisation must be resorted to. As fresh flowers open every day, and the pollen is fit to perform its office in a few hours afterwards, this should be applied to the stigma of flowers which have expanded the preceding day, and in this way the perfect ripening of the seeds is almost a certainty.—(*Horticulteur Francais.*)

Aralia Sieboldi. — We learn from the "Revue Horticole" that this plant has fruited in the open air at Cherbourg, producing five hundred fruits, each containing four perfectly ripe seeds.

CALENDAR OF OPERATIONS.

GREENHOUSE.

Mixed Greenhouse.—A host of things may be grown here for the next two or three months. Fuchsias, Japan Lilies, Kalosanths, will take the place of Pelargoniums and Calceolarias; in addition, some showy annuals should be grown for the purpose. Balsams, Cockscombs, Thunbergias, &c., will all help to make a gay appearance. *Camellias and Azaleas.*—If the proper treatment has been followed, Camellias will have their bloom-buds for next year discernible; when such is the case, gradually allow more air, to inure them by degrees to out-door treatment. In placing them out, select a shady well-sheltered spot; worms must be prevented from getting into the pots, and secure them from being blown over. Water as occasion may require. Greenhouse Azaleas will require similar management, but are longer in forming their buds, and will bear exposure to the sun. Keep down thrips. *Cinerarias.*—Seed should now be sown. The cuttings on the first-cut-down plants will now be long enough to take from the old stools. These should be struck in fine sand, in cool frames facing the north, potting them off singly in very small pots as soon as struck. If mildew appear sulphur the plants affected without loss of time. *Pelargoniums.*—The general cutting-down is now at hand; cuttings strike freely in an old hotbed, first putting in sufficient soil to raise them up near the glass.

CONSERVATORY AND SHOW-HOUSE.

As most greenhouse plants will now be out of doors or in frames, their place in these houses may be filled with some kinds of hardy stove plants, Orchids in bloom, Fuchsias, Kalosanths, and Neriums. Do not fail to keep up a supply of Mignonette; keep the internal borders damp, where vigorous roots exist; and attend to the requisite cleanliness required by both house and plants.

FORCING.

Make fires in dull damp weather in the case of late Grapes in bloom, and such as are colouring; give air at every opportunity. As the crops of forced *Peaches* are gathered, well

wash the trees, daily, to destroy red spider, shutting the house up close. Give air again by night; a warm well-aired atmosphere by day, and a cold one by night, will assist the ripening of the wood. *Pines.*—Give air liberally to ripening fruit. Keep those plants swelling fruit moist at the root, and syringe daily. Pot successions; keep the bottom heat at a steady point, 85° to 90°. Air by night in warm weather will strengthen young stuff; pot suckers for succession. *Melons.*—Give plenty of light and air to ripening fruit. See that the roots get no check, either by the bottom heat declining, or through want of water when the fruit is swelling; sow for the last crop, and earth-up succession crops. *Cucumbers.*—Shade, or the fruit will be bitter.

KITCHEN GARDEN.

Every piece of vacant ground should now be cropped with the various Broccolis, Borecoles, Brussels Sprouts, Savoys, &c., for winter and spring supply. The above should have been transplanted before their final planting; should the disposable ground not be sufficient, plant a quantity out rather thickly for replanting as more ground becomes vacant. The principal crops of Celery and Leeks should now be got out; sow the last crops of Peas and Broad Beans; successions of Lettuce, Cauliflowers, Spinach, &c., may yet be sown.

HARDY FRUIT.

Pears and Plums against walls, where at all vigorous, should have about a fourth part of the uppermost growth of young wood removed, cutting back to two or three joints; towards the end of the month the next part may be removed. Peaches and Apricots will require the summer wood nailed in; still keep a watch for insects, and attack them with the engine when found. Net Cherries, and stop and nail in the young wood of Vines. Strawberries must be layered immediately the runners are formed either for forcing or forming new plantations.

FLOWER GARDEN AND SHRUBBERY.

When once the summer plants are on the move, the principal points to attend to will be tying up or pegging down, as may be necessary, watering in dry weather, and great attention must be paid to order and neatness in every quarter. *Roses.*—Decaying blossoms should be cut off with long stalks, and always to another bud. Where required for exhibition, it is often desirable to thin out some of the buds; in dry weather liquid manure much increases the beauty of the flowers.

FLORISTS' FLOWERS.

Auriculas.—These will remain for the present in the cool, as previously directed. If the border is well drained, it will take considerable rain to injure them; wet in excess would, however, be injurious, and from it, therefore, they should be protected. The soil intended for repotting them should be turned over occasionally, and not allowed to become either very dry or very wet. *Carnations and Picotees* should be frequently gone over with the watering pot, if dry weather prevails; a check at this stage of their growth would be very prejudicial to the bloom. Weak liquid manure may be used occasionally. The grower for exhibition is fully aware of the importance of keeping down insects, particularly aphides. The more clean and healthy the plants are in a young state, the less thrips are there to contend with in the blossoms. Tying the buds with a small piece of bast just as they are on the point of bursting, protecting them as soon as they are open, and placing cards on the finest flowers as soon as the guard petals have dropped, will engage the attention of those that cultivate these beautiful flowers successfully. Should any pots have more layers than there will be room to put down, the smallest shoots should be taken off, and struck in a similar manner to Pinks. It should also be done early, at the same time as Pinks are put down, and a month before it is necessary to commence layering. *Dahlias.*—Planting will now be completed, and for a month hence there will be but little trouble required. The principal attention needed will be watering over the foliage with soft water in the evening, using a good rose, watering once a week in addition, if the weather is dry. Insects, particularly earwigs, should be exterminated. *Hollyhocks.*—Cuttings may be put in to a considerable extent this month, as, by taking the small side-shoots for the purpose, strength is thrown into the flower-spikes. *Pansies*—The first cuttings will be struck by this time, and should be planted out to bloom in September and October, when they will produce healthy cuttings at a season when it is no trouble whatever to strike them. This is not the case in the summer months. Nothing is more difficult to strike in hot drying weather than Pansies. However, all the cuttings that can be procured during July should be put in, as the plants will frequently go off at this season in large numbers, and give but little indication from their appearance of such a result being about to take place. Seed can be procured freely this month, but it will not be so good in quality as that saved in July. *Pinks.*—The general propagation of these should now be proceeded with. If the top of the leading shoot is taken off with great care, the plant will produce a large number of small shoots, which will strike readily towards the end of the month. Seedlings should be selected carefully as soon as they are in bloom; only those with smooth edges and distinct, well-defined lacing should be grown another season, to finally ascertain their quality. *Tulips.*—These having been taken up as directed, clean the bulbs as soon as sufficiently dry. Place the cabinet containing the bulbs in a cool, dry place, where they will remain quietly for some time.

TACSONIA VAN VOLXEMII.

[illegible] Lith. 18 Hatton Garden.

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TACSONIA VAN VOLXEMII

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TACSONIA VAN-VOLXEMII.

WITH AN ILLUSTRATION.

Our figure of this remarkably beautiful Passion-Flower has been prepared from specimens obligingly furnished some time since by Mr. R. T. Pince, of Exeter, who thus describes his method of treatment:—

"Tacsonia Van Volxemii is undoubtedly one of the finest conservatory climbers ever introduced, second only to the justly and universally admired Lapageria rosea. The healthiness, vigour, and rapidity of its growth combine to make it highly desirable for producing immediate effect in conservatory decoration. The flowers, which are of a rich rosy crimson colour (fully 5 inches in diameter), are freely produced from the axil of each leaf, and are gracefully suspended on long slender footstalks a foot in length, so peculiarly slender and thread-like that the flowers hang, as it were, clear and detached from the foliage, and have the appearance of brilliantly-coloured parachutes suspended in the air. Our plant was put into our show-house (the temperature of which is only that of an average conservatory, air being freely admitted, and the thermometer frequently falling as low as 38° to 40° in winter), in the middle of April, 1865, and by the end of January it had covered the ornamental rafter which spans the house, had been clothed with flowers all through the summer, and was still adorned with them. The foliage is also remarkably good, and free from that coarseness which detracts much from other Tacsonias.

"Our plant is growing in a mixture of rough peat, loam, and coarse sand with abundance of drainage, and plenty of pieces of broken brickbats, crocks, sandstone, and old lime rubble, mixed in with the soil. Occasional syringing and copious supplies of water to the roots during summer and autumn promote luxuriant growth. It may be requisite now and then to cut back vigorous shoots which have flowered, in order to bring up fresh flowering-stems. From the pendent position of the flowers, it is obvious that this beautiful climber can be seen to better advantage trained to a rafter or the roof of the conservatory, than if put against a wall. I have alluded to its comparative hardiness, in support of which, and in addition to the general lowness of the temperature of our show-house, I may say, in conclusion, that we had a plant of it growing luxuriantly on an eastern wall out of doors, during the summer and autumn of 1865."

This charming creeper is a native of New Grenada, where it is cultivated in gardens under the name of Courouba. It found its way into Europe a few years since through M. Van Volxem, a Belgian traveller, after whom it has been named by M. Funck; but it has remained comparatively little known in this country till the beginning of the present year, when Mr. Pince invited public attention to its very showy character. M. Van Volxem states, that in the places where this plant is found, the thermometer often descends below the freezing point, a circumstance which quite accords with the experience of cultivators as to its comparative hardiness, the shelter of a greenhouse or cold conservatory being found sufficient for it.

The flowers are quite remarkable for the long, slender, thread-like stalks by which they are suspended.

M.

CULTURE OF THE GENUS KALOSANTHES.

This showy and beautiful tribe of plants well merits the attention which has of late years been bestowed on its cultivation. As a late summer decorative plant the Kalosanth is very useful, flowering from July to September. It

is very easily cultivated, indeed it will grow well and flower under conditions and treatment that would be certain destruction to many decorative plants. Cuttings put into sandy soil and plunged in a little heat root freely; they will strike in almost any situation under glass if kept tolerably dry, but will be longer in doing so than when placed in heat. When rooted they should be potted off and stopped back to cause them to throw out shoots.

Plants with half a dozen or more shoots should be selected in spring for growing into specimens. These should have their shoots stopped, and after they have broken they should be very carefully potted, giving them a liberal shift. The pots should be well drained. A compost of two-thirds peat and one-third turfy loam, with plenty of sand, will suit them admirably, putting in plenty of small pieces of broken pots among the soil. When potted, to start them into growth, the plants should be placed in a house or pit where they can have a temperature of from 50° to 55° by night and of 65° to 70° by day, rising to 80° or upwards with sun heat. The plants should be kept near the glass, and they should have a moist atmosphere until they begin to grow freely, when a drier atmosphere and more air will be required. Water should be given sparingly at the root until they begin to grow freely and take hold of the fresh soil.

Towards May the plants, if kept in pits, should have abundance of air at all favourable opportunities. If they cannot have this where they have hitherto been growing, they should be removed to a warm part of the greenhouse where they can have plenty of air and full exposure to the light. With careful attention in watering they will become strong and grow vigorously. Towards the middle or end of July they may be placed out of doors for a few weeks. The principal point now to be attended to is the important one of well ripening the young growth that has been made, and for this purpose the plants should have all the sunlight possible. They should not remain out of doors later than the first week in September unless the weather be very fine, when they may be kept out a week or two longer.

The plants are best wintered in a greenhouse; they will, however, do very well in a pit, but it requires considerable care to keep it dry and well aired. During the winter months water should only be given when absolutely necessary; but on the return of spring, when the days lengthen and the plants get more air and light, water will be required more frequently, and as the season advances it should be given liberally. Under this treatment the plants will be objects of great beauty in July, and will continue so until the end of September.

When very large specimens are required the plants should not be allowed to flower in the second season, but should be stopped in the previous July; they would then push out more shoots, and in the spring of the second year they should again be stopped. When they have broken they should all be shifted into larger-sized pots, giving the strongest and most vigorous plants liberal shifts, well draining the pots, and using a compost the same as before, but if anything in a rougher state. When potted they should be placed in the warmest part of the greenhouse, and be kept rather close for a few days. As soon as they begin to root freely into the fresh compost they should have plenty of light and air. Water should be given carefully until they be pretty well rooted. They may be syringed occasionally after warm days. As the season advances they will require liberal supplies of water, and an occasional watering with liquid manure will be very beneficial. Under this treatment, and with abundance of light and air, they will make strong, robust growth.

In August the plants should be set out of doors in a sheltered, sunny, open situation where the young shoots can get well matured. They may be wintered in a cool, airy part of the greenhouse, and should only have water given them

when necessary. On the return of spring, when the days lengthen and the plants get more heat, light, air, and water, the flower-buds will begin to show themselves. As the flower-stems advance in growth they should be tied neatly to stakes, both to support and prevent them from breaking, and to give the plant the shape required. When the flowers begin to expand the plants should be shaded in bright weather, and they must be liberally supplied with water while they are in flower. If shaded, the plants will continue in bloom seven or eight weeks, and when in perfection there are few finer objects.

If the plants are required to be grown again after they have done flowering, they should be cut down immediately after they have gone out of bloom, in order that they may break and make a little growth before the autumn gets too far advanced. As these plants require one entire season to make the young wood and set the buds, and another entire season to perfect the flowers, it is desirable to have a number of plants, and to flower one half of them one season and the other half in the following year.

As Kalosanths are very useful for in-door decoration, cuttings should be put in every season, and a number of small plants grown for the purpose. They make fine plants for vases, and form very gay beds in the flower garden during August and September. As the plants when in flower are very showy and ornamental, and as they are very easily grown, a good stock should be always kept on hand; they are useful for so many purposes.

Stourton. M. SAUL.

OLD FAVOURITES.

WE move so rapidly, and take such giant strides now-a-days in some branches of horticulture, promoting International Horticultural Exhibitions, and similar great enterprises, that there is some danger of our forgetting, or, if not forgetting, pushing aside some old favourite flowers that at one time were to us so captivating that we looked anxiously for their appearance, and welcomed them as

"Stars, to tell us Spring is born."

Not that the old love has been thrust off by the new—a true florist rarely jilts an old flame—but big concerns and stirring enterprises engross our time, and the old and seemingly less important ties are partially sundered.

I remember how a few years ago the varieties of double Primroses were largely used for spring flower gardening before there sprung up such a general liking for some of the odd and fantastic forms that the summer flower garden now takes. If any one doubts their real use and beauty, let him pay a visit to Cliveden Gardens early in May, and he will there see what they can do to contribute towards the most pleasing effect one could desire to see. How charming do the crimson, lilac, and white varieties appear, clothed as they always are during their season with flowers! They can be used in many ways for effect to suit the taste and skill of the designer. When they have done blooming they can be removed, divided, and planted in a cool, shady border for use again in the autumn, to gild with their sweet beauty

"Returning days—returning spring."

The Polyanthus is another flower that is ever a "welcome guest" at the birthtime of spring. The gold-laced variety, each flower having a distinct well-defined edging of gold, is getting now well known and largely grown. It seeds freely, and young plants can be obtained quickly. An old gardener has left on record this fact, as containing a rule demanding the strictest observance,

that when frost is imminent the soil should be pressed firmly round the root of the plants and brought up close to the foliage.

In some of the midland and north-western districts of England I have often been struck with the beauty of the common Cowslip, growing so freely in the fields and hedgerows. Transferred to the garden it might be advantageously used in the spring. Its yellow flowers would contrast well with the dark blossoms of the Polyanthus, and render valuable aid at its appointed time. As old Donald Beaton once informed us, "Cowslips come like Polyanthuses, but all looking down the contrary way. Polyanthuses come in umbels or heads of so many flowers on the top of one stalk, and every flower looking up. The Oxlip, which is a hybrid between the Cowslip and the Primrose, comes with the guard flowers, or outside flowers of the head looking down and the centre flowers looking up, or half way between the two parents. All these are of more colours than one."

The Alpine Auricula, too, as a member of this group, can be used also with effect in the spring. In some districts, generally in the south and west of England, it will flourish well out of doors during the winter, and when it grows with comparatively little risk it should be cultivated as a useful member of the class we have been treating of.

To the foregoing may be added the double Daisy, a most invaluable agent in the hands of a spring gardener like Mr. Fleming. With him these Daisies grow lustily, flower freely, and propagate themselves rapidly. They can be had of a deep rose colour as well as pure white, and there are intermediate shades of pink as well. Immediately after flowering the plants can be lifted and divided, and planted out in some shady nook to make growth for autumn planting.

Many inquiries have been made for seed of the double Daisy; but it appears that it will not seed in England. Seed, however, is sometimes imported from Germany, but it seldom if ever grows. As before stated, by root-division a quantity of plants can soon be obtained. Their propagation does not make a large demand on the time of the cultivator; but it yields, notwithstanding, a large return, when, awakening from its sleep, the plant puts forth pretty flowerets at the summons of soft skies, vernal breezes, and lengthening days.

Quo.

ON THE CULTIVATION OF THE FILBERT.

(*Concluded from page* 152.)

It has been remarked that no fruit tree is pruned with more severity than this, and long experience has proved that without doing so a good crop of fruit need not be looked for. Some judgment is also wanted to start the tree into the proper shape at first, and a glance at those of mature age will show how this is to be effected. The universal custom in Kent is to train the tree into a sort of basin shape, not unlike the ribs of an umbrella when inverted; and in the adult tree, the edges or tips of all the branches radiating from the centre being of a uniform height of about 5 feet, a great similarity exists amongst the trees which compose a plantation, and if the ground is level the eye of the spectator will skim over the whole. Their height and uniformity are very striking after they are newly pruned, but, of course, when the summer's growth is going on they are widely different, and show as rampant a growth as that of any plant I am acquainted with, some of the shoots being little short of 8 feet long, straight and tapering like an Osier wand. Those of the young plants are rarely so long, and it is to these that we have more especially to direct our attention.

In the young plants all central and all gross shoots must be removed, and such small ones as are of a spreading tendency are left, being shortened at the tops. The Kentish mode by which another gross growth is in a great measure prevented where the former one was removed, is simply to cut out the coarse rampant shoot with a coarse-toothed little hand-saw, making a sort of haggling cut instead of the clean one caused by the knife. The saw is used, not in pruning the young trees only, but also those of more mature growth.

The pruning of the first year leaving only five or six side shoots, the number will not be much increased the second year, only a fork may be here and there introduced when the space seems wide; the rank, coarse wood being cut away as before, and the small, short-jointed pieces only left, and these shortened to the suitable length. Keep the centre perfectly open so that the sun may shine into it, and on the north side as well, or, perhaps, better than on the south side of the tree. In the third year some tiny shoots will indicate, probably, the presence of fruit-bloom; leave a few of these shortened to about 3 inches or less, and keep the remainder of the tree pruned to the shape recommended above, which is that of a basin or bowl, and do not let the permanent branches or ribs be too thick.

In the case of old trees, if the ground is suitable the summer shoots will be long and straight like many of the basket Willows, and sometimes they are used for the same purposes. From 3 to 6 feet is the average length. The first thing done when pruning commences in the autumn is to look over all the trees, and pull out by a jerk of the hand all the gross strong-growing shoots in the centre. Generally they will come out pretty well, and bundles of these are very useful for tying up plants, or such out-door flowers as only require a slender stake. The rest of the pruning is done with the knife and saw, the latter being used to cut off such strong gross shoots as it may be necessary to shorten to a couple of inches or so, and the more slender are cut back with the knife. It is seldom that more than 4 inches are left of any young shoot, and very often much less.

The short-jointed small wood generally produces the most nuts, and those most exposed are the best; but nuts are also grown near the centre of the plant, on spurs of the long main branches, and some on the subsidiary ones. Occasionally a large limb may be cut out, but this is not often the case unless disease or appearance of too much crowding points it out as necessary, or when the tree has exceeded its bounds. In the latter case it must of necessity be cut back, and the occasional bringing forward of young branches from the centre will enable this to be done on the same principle that other fruit trees are pruned; but the Filbert will bear a greater amount of spurring-back than any tree I am acquainted with. The quantity of young wood left on an adult tree each year at pruning is exceedingly small, and in most other fruits would produce disease; but Filbert plantations last a great number of years, and their bearing properties are rather enhanced than diminished by age. Each succeeding year's pruning leaves them in the same uniform shape as before, which is an open cup or basin-shaped centre, with the outer edges not more than 5 feet high. Of course, exact training to this cannot well be accomplished without tying, which is rarely adopted; but the cutting at the edges to the height above indicated leaves the tops parallel with the ground surface; and, though there are some branches near the outer edge between the ground and the edge of the basin spoken of, they are of less consequence than the framework of the tree forming the shape here described.

With regard to manure, that which is very rich, as farmyard dung, is seldom used, as tending to too much grossness. Woollen rags and shoddy are largely employed in many districts, and are great favourites with the Kentish farmers.

The rags, it may be observed, are chopped into pieces not larger than half the palm of the hand, and the shoddy is separated by tearing it open. Other manures are also occasionally employed.

Suckers from the collar are most effectually prevented by scooping away the earth all round the collar in October, forming a sort of basin about a yard or more in diameter, and exposing the main roots. The action of the frost on these roots is said to prevent the tree exhausting itself with suckers, and certainly none are produced when this treatment is adopted. The ground is again made level at the time of digging in March, the trimmings being all previously conveyed away; and if all go on well a good crop of nuts is looked for. As with all other crops, this is, however, not a certainty, as many extensive plantations in some years do not produce more than a bunch of nuts per tree—not sufficient to be worth looking for, while in favourable seasons from 10 to 20 cwt. of fruit per acre has not been uncommon. So much depends on the season, that with all the advantages of situation, skilful management cannot always command success; but well-directed skill, aided by other favourable conditions, certainly renders success more likely.

N. R.

TRACHELIUM CÆRULEUM.

I HAVE just now a good plant of the somewhat-neglected Trachelium cæruleum. When a year or two ago I saw it growing in a window of a friend's house in London, I was so much struck with it that I begged some seed, and have grown a plant or two every season since, as it has now become not only with myself but with my employers an established favourite.

The seed should be sown in June. This will admit of having good strong plants in 48-pots to stand the winter. In spring give them a good shift into 24 or 16-sized pots, keep them as cool and as near the glass as possible, and pinch back constantly till the end of May, by which time the plants will have two or three dozen blooming stems. As it is properly an autumn-flowering plant, the plants would be better plunged in ashes out of doors till the bloom is about to expand, when they may be carefully tied out and removed to the conservatory, verandah, or any sheltered nook where they are not exposed to the rain. The large masses of cerulean blue, often 6 inches across, which each stem will produce, will make each plant a handsome specimen, and will well repay the small amount of labour they have cost.

Of all the gardens in this locality which I have visited I have never yet seen this Trachelium in any but my own. I have no doubt that with a little extra pains it might be made a good specimen plant for exhibition, and would possibly somewhat astonish those who have not seen it well grown and flowered.

Maybush. A. D.

SPRING-FLOWERING BULBS.

ONE great merit in spring-flowering bulbs is the ease with which they are made to produce their flowers. This, added to their cheapness, is the reason for which they are eagerly sought after, and certainly they are well calculated to produce a lively appearance in the garden at a time when it would be otherwise comparatively bare of flowers. Those who grow them on a large scale will by this time have given their orders, and those who fully understand their proper treatment, procure them as soon as possible after they arrive in this country, knowing full well that in such matters delays are dangerous, and

that, generally speaking, the first comers have the best choice; but for decorating villa gardens, windows, &c., they are not generally obtained till late in the year, and often not till they begin to grow in the shop windows. Experienced growers well know that in this case the bulbs are injured, although they may produce their blooms properly, because the rudiments of these are already formed in the bulbs; but then it is much better to have them in the ground before this takes place.

In the purchase of bulbs it is advisable to have an eye to the purpose to which they are to be put. For instance: if intended for decorating the borders of a villa garden, it is scarcely worth while to choose the choicer kinds of Hyacinths and Tulips; for of the former there are plenty, usually catalogued as border Hyacinths, priced at about 4*s*. per dozen, smaller generally than others, but equally good and oftentimes producing as good spikes of bloom as the high-priced ones. The same may be said of Tulips. There are sorts equally showy with the best—as the Van Thol, Double Tournesol, and Rex Rubrorum, which are sold at 6*s*. and 7*s*. per hundred in ordinary seasons. These answer admirably for planting in borders, and will be found less expensive than better kinds, for it must be observed that a dozen or two of Tulips or Hyacinths may seem enough to enliven a border; but experience will show that their appearance, when planted and in flower, will be very insignificant, and nothing to the fine massive effect produced by a quantity of less expensive but equally showy sorts; and even where they are not massed, but only placed about the borders in small patches, it takes a great number to make any effective display. Something may also be said with regard to colour and prolonging the season of blooming. In the former case some would object to the glare of scarlet and yellow presented by the Van Thol and Tournesol Tulips, as wearying to the eye, and certainly it is not advisable to confine oneself to them. But they may be varied by Crocuses of different colours, Snowdrops, and early Narcissus, and also by means of Hyacinths, which vary considerably. As regards the season of flowering, this may be prolonged by using such bulbs as flower successively, beginning with Winter Aconites, followed by Snowdrops, early Tulips, Crocuses, Hyacinths, early Narcissus, medium Tulips, late Narcissus, and late Tulips. These flower during the months of March, April, and May, and by a suitable arrangement they may be placed so that they may all be seen to advantage at their several times of flowering.

I once planted a bed entirely of different kinds of spring-flowering bulbs, both with the object of keeping up the display as long as possible, and of varying the colours, so that the bed while any of the bulbs were in flower presented a massive display of colour. The bulbs were all newly imported, and were planted so that they might grow and increase, which they could not do without having the proper time to form and ripen the bulbs, and as I did not intend to take them up every season the ground was trenched and manured before planting. The bed was 7 feet wide, and about four times that length. The arrangement of the bulbs was as follows:—They were placed in rows 10 inches apart across the bed; the depth of planting varying according to the size of the bulbs—that is, about 4 inches deep for Snowdrops, a little deeper for Crocuses, about 6 inches for Hyacinths, and the others in proportion. The first row consisted of early Tulips intermixed with Snowdrops; the second, of Hyacinths; the third row, of late Tulips and Crocuses; the fourth, of Winter Aconites and early Narcissus; the fifth row, of early Tulips and late Narcissus; sixth row of Hyacinths and Winter Aconites; seventh row, of Snowdrops, Scillas, and late Tulips; and so on throughout, varying and mixing the colours and sorts as far as was convenient—not the most scientific arrangement perhaps, but when in bloom the bed had a most pleasing effect.

From the time the earliest began to bloom till late in May, when the double Poet's Narcissus was in flower, it presented quite a gay appearance. By midsummer the leaves of all but the late Narcissus had died down and were removed, and the surface of the bed was pricked up with a fork and sowed with the seed of Phlox Drummondi. By the beginning of August this began to flower and continued doing so till the following winter, after which the bulbs again came up and flowered, and the bed underwent the same course of treatment. After flowering the third time, the bulbs were taken up, the ground trenched and planted with Verbenas, and the bulbs again planted the following autumn. They had increased very much, and they flowered equally well the following spring.

This method of treating bulbs I think is preferable to the usual mode of managing them in villa gardens. They are generally put in borders already too crowded with shrubs and miscellaneous plants, are forked up, just as they begin to grow, in the usual autumn dressing of the borders, and rarely survive the second season. If by any means a piece of ground can be devoted to them, and they are managed in some such way as that described above, it will be not only more satisfactory, but the bulbs will increase instead of diminishing. I certainly would not discourage planting them in mixed flower-borders, but it is necessary for their well-doing that they have every chance of developing the foliage as well as the flowers—that they are not crowded amongst other plants; and although summer and autumn-flowering plants may be grown between them, it should be remembered that they are likely to be injured by the exhaustion of the soil caused by planting too thickly. Another thing to be observed is, the leaves should not be cut off in a green state, as is often practised, because they are said to look untidy; the leaves are necessary to the proper development of the new bulbs—a fact too often lost sight of in villa gardens, and this is one great reason why bulbs so soon dwindle away. It is also important to mark them, so that it may be known where they are when there is nothing left of them above ground.

Of the adaptability of bulbs for pot-culture much has already been said; and although the necessary materials for the purpose of growing them in pots are very simple, some would seem to imply that materials are necessary which are certainly not within the reach of all. I have grown them very successfully for years, and used different kinds of soil, and covered them with different materials, as coal ashes, sawdust, old tan, and common earth, and all with nearly the same results—in fact, I have come to the conclusion that the material they are covered with after potting is more a matter of convenience to the operator than of consequence to the well-doing of the bulbs, and that the best soil to grow them in is about one-half silky loam, and one-half of dung, rotted to a crumbling state, mixed with an equal portion of leaf mould, from leaves that have been swept up from paths, lanes, &c., and allowed to rot. These are sure to have a large proportion of grit mixed with them, which keeps the soil porous and open. If grit is not thus obtained, a suitable portion of it should be mixed up in the dung. Mix these ingredients well together, and you have a soil in which spring-flowering bulbs will thrive; but if loam is not to be got, the leaf mould as described will do alone, or any common garden soil may be mixed with it; or even if these are not readily obtained there need be no fear of potting the bulbs in any porous soil in which a tuft of grass will grow, for it is a mistake to suppose that Hyacinths, or Tulips, or Crocuses are particularly nice as regards the nature of the soil they are placed in, provided it be sweet, and free from any grubs or other destructive insects. This much, however, may be observed, that bulbs, in common with any plants that are grown in pots, are limited in the supply of soil in which they can form roots—that they have not

so much room as plants in the open ground; consequently, the soil in the pot should be proportionately richer, or if the soil is not rich, the roots should be fed with liquid manure. Even this is only requisite when it is desired to make use of the bulbs for another year, when they must be sustained during the process of ripening as well as whilst producing the flowers.

My mode of potting bulbs is to use a soil composed of loam, dung, and leaf mould, as before mentioned. This is well mixed, and if there is not quite enough sand in it, add a little more: fine gravel will do as well as anything.

In preparing the pots, which should be perfectly clean and dry, I always place a piece of broken pot over the hole in each pot. This is placed so that it may not stop the exit of water, as it would do when the soil had worked down to it if placed with the hollow side upwards. I then place in each pot a handful of crocks broken rather small, and then a layer of rough soil. This method of draining pots I find effectual, and it is important that it should be so. The pots are next filled two-thirds with soil, the bulbs are then placed with a little silver sand under each to encourage the fibres, and the pots filled up with soil. I like to cover the bulbs to the crown, but some prefer letting them stand up half out of the soil.

For Hyacinths I like to put one in a four-inch pot, Crocuses about six, Tulips three, and Snowdrops about twelve in the same sized pot; for Narcissus I prefer putting four or five round a larger pot, as I think they show so much better in a fine cluster; and Hyacinths the same if they are matched in colour and height, but they sometimes vary so in height as to spoil the effect in a large pot.

When all are potted, they are placed close together on a level piece of ground where there is no chance of the water standing, the labels are then raised on sticks about 8 inches high, and all are then covered with common earth or any loose mould. I prefer this to ashes, sawdust, or any other material, as it leaves no unpleasant appearance on the surface of the soil, as ashes and sawdust do if not thoroughly cleaned off. The labels are left just above the soil, so that it is easily seen where each sort is—a matter of importance where they are to be drawn at different times for forcing or otherwise, as one can be taken out without disturbing the others. If they are not wanted for forcing it is not advisable to uncover them till March if they are in a frame. The soil may be scraped away from the crowns a little in February, and the Narcissuses encouraged, and covered up again, as they are apt to root over the sides of the pots.

For window decoration these bulbs are invaluable, and in a warm room some may be got on much earlier than others, so that a succession may be kept up for a long time. When grown for window decoration the treatment is the same as if grown for the conservatory, until they are divested of their winter covering, and then the only difference is, that in one case they have a glass roof over them, and in the other they receive the light all on one side, and are apt to get drawn out of the perpendicular. A suitable stick should be provided, or they are apt to break off with their own weight; but in either case, after flowering, they may be planted in the borders, and they will flower there another season, although not so strongly.

All bulbs that have flowered in pots one season can be planted out in the borders, where they are more likely to come up again and flower than if kept in pots. In fact, I have known Hyacinths flower successively for many seasons after being thus turned out of pots in which they have flowered already, and while this can be done there is no need to throw any away, as a few new bulbs may be procured every year for flowering in pots, and afterwards used to replenish the borders, where they will not be lost.

Of the merits of growing, or rather flowering, Hyacinths in glasses, I have

always had my doubts. It may seem curious to have a plant growing beside one in a room with every part visible; but I do not see any extra beauty in a glass-grown Hyacinth; indeed, I think that the same plant would look better in a suitable-sized flower-pot, and certainly when they begin to topple over it is much easier to support them in a pot than it is in a glass. Nor are they so useful afterwards when grown in glasses, as the bulb has worn itself out in the process of flowering, and has no strength left to prepare for flowering another season; yet the practice is carried on by a very large class, is honoured by time, and sanctioned by custom.

F. C.

MOSS ROSES.

What a universal favourite is a Moss Rose! A pure cockney is as proud to have one in his coat as a peer would be to get the blue riband of the Order of the Garter. There is no perceptible improvement going on in relation to this flower. At the recent National Rose Show there were exhibited by, I think, Messrs. Paul & Son, some cut blooms that bear names as "familiar in our mouths as household words," inasmuch as we have been acquainted with them from childhood. Some novelty, and, not least, some quality, is required to relieve the monotony of this annual repetition. The sorts shown by Messrs. Paul & Son were Laneii, Comtesse Murinais, Cristata, Bath White, Baronne de Wassanaer, and Salet. They were all nearly of one shade of colour, and sadly wanted substance and distinctness.

B. Winter.

BEDDING CALCEOLARIAS.

Will some of the readers of the Florist and Pomologist give the benefit of their experience as to the cause of the failure of so many of the plants after they are placed in their flowering quarters in the beds? There must be a cause, and if possible it should be discovered and a remedy sought for and applied.

I think early planting to be absolutely necessary, so that the plants may get well established before being subjected to the influence of the sun's hot rays. I planted out, in the first week in June, some plants of Calceolaria Aurea floribunda. The weather was moist, and almost unpleasantly cool for the time of year; they were watered when necessary; and by the time the hot weather set in they had become well established, and are now blooming freely and growing vigorously as well. Occasionally they receive a root-watering, and almost daily a slight sprinkling overhead. All were well and strongly rooted when they were planted out, and there has not been a failure.

Since the recent hot weather set in I have had occasion to plant a few more, using two varieties—viz., Viscosissima compacta and Aurea floribunda. The former were planted just as the hot weather set in, and though in a very exposed situation, they were kept well watered. They had plenty of roots, but the soil had become somewhat shaken out in the course of transit over a few miles. For two or three days they looked as if they meant growth, but soon a new aspect was presented, and they shrivelled up and wasted away daily. Out of a dozen good bushy plants not more than three are spared. Their decimated ranks were closed up with some strong well-rooted plants of Aurea floribunda removed from another bed, and which were already in flower. The flowers were pinched off, the plants kept well moistened at the roots, and nightly sprinkled overhead with a rose watering-pot. Alas! all labour is not

profit. Soon some of these began to show evidences of the hot sun proving too much for them, and the flaccid shrunken foliage told the old tale of something being wrong. It was a case calling urgently for prompt measures. Carefully removing all foliage showing signs of decay, I gave the plants a sprinkling, then inverted over them some 24-sized flower-pots, and, going a step further, environed these with laurel sprigs to shield even the pots from the sun's direct rays. By this method I have succeeded in arresting their downward course. Some cool weather coming opportunely greatly helped my efforts; and now with but one exception, and that by no means a hopeless one, the plants look as if getting towards convalescence, having been snatched from the very jaws of death.

Now, whether this somewhat rude theory will accord with the practice of any one else or not I do not know, but it will do no harm to broach it. How does it commend itself to Mr. Fleming, of Cliveden, who is, I suppose, compelled to bed out late, as his splendid system of spring gardening would tend to postpone the bedding-out process? I say, Plant early—as early as it can possibly be done; and great care should be taken that the plants be not too much pot-bound, as sometimes when this is the case an excess of moisture first soddens and then destroys the outer roots. Calceolarias root very quickly into a light sandy soil, and a little should be used when the plants are placed in the beds. Carefully open out the roots of pot-bound plants. Do not plant them as unconcernedly and as carelessly as if they were so many brickbats. I have seen bedding-out performed in a way that would excite the indignation of a bishop. In August it is possible to go among flower-beds where work has been slovenly and thoughtlessly done, and pull up dead Calceolarias as full of vitality about the roots as drumsticks; and then a stupid gardener laments the devastation, wrings his hands, and wonders at the cause.

I say, Bed out early; and to that I add, Bed out intelligently. There will be less failures, and less of those great eyesores—beds filled up at the eleventh hour with any kind of odds and ends, no order, no taste, and hanging like a millstone round the neck of the unhappy gardener, who trembles over the uncertainty of his tenure of office.

Quo.

ON MOSSES.

Is there no way of rendering Mosses better adapted for ornamental purposes than they generally are at present? No one who gazed upon those splendid pans of Lycopods, comprehending so many kinds, exhibited at the recent great International Horticultural Exhibition, could fail to be struck with the thought that, beautiful as they were, full of luxuriance, and a credit to their growers, yet there was such a sameness, such a lack of varied colouring about them, that one good look sufficed to take in all their charms, and the gazer speedily passed on in search of something more varied and pleasing.

Now, Mosses may be grown in a variety of ways, whether in small pans or pots, to stand in front of or amidst flowering or ornamental-foliaged plants, where they have a very pleasing and effective appearance. It is, however, generally understood that to grow Mosses well, and especially for exhibition, they must be in as large pans as possible, forming dense masses from 18 to 30 inches in breadth, and almost invariably offering a flat surface, devoid of flowers or coloured foliage to give relief, and they thus present anything but that varied aspect upon which the eye delights to rest.

Having this season grown a few rather larger pans than usual of such as Selaginella denticulata, Martensii, formosa, and a few others, and being struck

with the idea that a little variation would be worth attempting, I proceeded to scoop out the centre of each pan, giving space enough to admit a 32-sized pot. Thus, into the centre of the pan of S. denticulata I placed a nice plant of Alma variegated Geranium, the Moss just covering the pot; into that containing S. Martensii I introduced a plant of Lobelia Paxtoniana in full bloom; into that filled with S. formosa a small plant of Celosia coccinea pyramidalis; and into another Coleus Verschaffeltii. Besides these there are pans in which are introduced Thunbergia aurantiaca, Torenia asiatica, Mrs. Pollock Geranium, and a few other plants. The pans thus treated present a remarkably pleasing appearance, indeed all who have seen them have been struck with the idea: and I feel sure that if any fellow gardeners should be disposed to give the plan a trial they will be amply repaid both by its novelty and effect.

Maybush. A. D.

CANNAS.

In describing in a recent Number of the "Revue Horticole," a fine new Canna called Député Hénon having glaucous sea-green leaves, and very large chrome-yellow and purplish red flowers, M. André remarks that the modifications of the genus will, he believes, be always restricted within certain limits, and that those which have been already obtained seem pretty well to indicate that there is a certain point beyond which further variation cannot be expected. If the genus consisted of numerous, distinct, well-marked species, which could be crossed with each other, considerable deviations might doubtless be obtained in certain directions determined on beforehand; but notwithstanding all that has been written to the contrary, he does not believe in most of the so-called species of Canna, and he states that he has formed this opinion from six years' observation and experiment. "Like many others," he says, "I at one time believed in the distinctness of a good number of species, and I undertook to clear up the synonymy and publish a monograph of the genus; but after having laboured several years, experimented on the finest collection which has ever been brought together, and consulted numerous authors, I abandoned the project, and I have come to the conclusion that of the sixty or eighty species described as distinct, not more than five are really so. These are Canna indica, glauca, flaccida, iridiflora, and liliiflora. The first two, however, have so intermingled with each other that it cannot be affirmed that they do not belong to a common type." Hence M. André concludes that the hope of obtaining Cannas with large flowers, in spikes like those of a Gladiolus, will never be realised; that though varieties improved in every respect may, and doubtless will be obtained, the modifications which they will present will not go far beyond the present limits.

PENTAS CARNEA ROSEA.

This is alike useful and ornamental, but is not grown to that extent to which its merits entitle it. Where cut flowers are much in demand during the dull winter months, half a dozen good plants of this would not fail in giving a supply of this colour of blossom—a colour so much in demand on festive occasions. The only difficulty I find in the cultivation of the Pentas is that it is so subject to the mealy bug and brown scale, more especially the former, which is most difficult to eradicate when once fairly established upon the plant; repeated syringings are on the whole the most effectual cure.

The Pentas strikes freely almost at any time, but spring striking is probably

the most suitable, just for this reason, that we have all the summer before us to prepare the plants for winter blooming, when they are required for such a purpose. Let us take March as a suitable month to strike the cuttings in. Select small shoots of half-ripened wood, say four joints long, these strike freely in silver sand in a hotbed; in a short time, when rooted, they may be potted off in small-sized pots, according to the strength of cuttings, in good fibrous loam and well-rotted leaf mould, in equal parts, with a liberal addition of silver sand or peat, such as our specimen-plant-growers employ; either of these composts will suit the plant all through its future shiftings. After the first potting, in the course of ten days they will show signs that root-action has commenced. At this stage pinch out the points of the newly potted cuttings. This operation will cause the plants to break laterally. When these lateral shoots are of sufficient strength they may either be pegged down or tied with bast, being careful not to split the young shoots, as they are liable to be thus injured in consequence of being so brittle. As the plant advances in growth, keep shifting on till large enough—they may be grown to an immense size if required—at the same time practising pinching with finger and thumb, as the Pentas has such a tendency to produce flower at every third or fourth joint.

A warm stove, with plenty of light and moisture, is most suitable, and only in such a medium can clean healthy-grown plants be produced. Too bright sun will brown the foliage, and by so doing slightly disfigure the plants; hence the necessity of slight shading during excessively bright weather. A dozen good plants of this Pentas, in different stages, would furnish cut blooms nearly every day in the year. If old plants are grown on from year to year, they must be partially cut down, but not too closely, all the soil shaken away from the roots, and repotted; but old plants soon look shabby.

JOHN EDLINGTON (in *Scottish Gardener*).

IVERY'S NONSUCH LETTUCE.

I AM growing the above Lettuce this season, and am vastly pleased with it. It attains a good size, grows rapidly, hearts well, and there is no symptom of its going to seed. It eats crisp and sweet, with an absence of that peculiar bitter taste characteristic of some Lettuces. In character, too, it is very distinct. I hold it to be one of the best summer C s Lettuces in cultivation for table use, as well as a capital variety for the exhibition table. Is any one of the readers of the FLORIST AND POMOLOGIST growing the Holme Park Cos Lettuce, sent out by Messrs. Stuart & Mein, of Kelso? if so, some account of it will be very acceptable. Reference is seldom made to vegetables in the pages of the FLORIST AND POMOLOGIST, though why this should be so I cannot conceive. What can Mr. Tillery, of Welbeck, tell us, or Mr. Cox, of Redleaf, or Mr. Saul, of Stourton? They, at least, can write about vegetables.

E. W.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

July 3rd.—At this meeting Messrs. Veitch & Sons exhibited Nierembergia species, from Tucuman, said to be hardy and of a trailing habit, something like Phlox verna; the flowers were of a soft lilac, somewhat resembling those of N. filicaulis. The same firm had Alocasia gigantea, a magnificent plant; various other fine-foliaged plants, and cut blooms of Dipladenia amabilis, the flowers being larger and far richer in colour than D. crassinoda, whilst the foliage and growth partake somewhat of the character of those of D. splendens.

To this and the Nierembergia, among others, first-class certificates were awarded. A fine specimen of D. amabilis came from Messrs. Backhouse, of York, having numerous rich rosy crimson flowers, round, bright, and of great substance. First-class certificates were awarded to Mr. J. Watson, of St. Albans, for Pelargoniums Mrs. Dix, with scarlet flowers; and Miss Watson, rosy salmon, both belonging to the golden three-coloured-leaved section. The same award was made to Mr. Bartleman, for a Scarlet Nosegay Pelargonium named King of Nosegays, having fine trusses of flowers standing well up above the foliage, on which there is a slight dark zone. Mr. William Paul also contributed a batch of his seedlings, among which, Nimrod, a very pleasing and somewhat novel shade of orange scarlet, was awarded a first-class certificate. Mr. Paul also had St. George, one of the Nosegay section, colour vivid crimson scarlet; Scarlet Dwarf, rosy scarlet, the upper half of the flowers being suffused with orange, habit dwarf and close, trusses medium size; Wood Nymph, rosy cerise, flowers large and stout, good close habit, and large trusses; and Cardinal, brilliant scarlet, a fine shade of colour, trusses large and showy.

At the meeting of the Fruit Committee, a certificate of merit was awarded to a fine-looking Strawberry named Dr. Hogg. It belongs to the British Queen class, but, unlike the British Queen, it colours all over, and it is said to be very hardy and a great bearer. A variety named Denbigh Seedling came from Mr. Oldham, of Wrexham. Its fruit was large and coarse, and on being tasted proved too acid to merit recommendation. Some sorts came from the Society's garden, among which were Vicomtesse Hericart de Thury, a variety that is extremely hardy, of good flavour, and unsurpassed as a cropper; La Constante, a sort well suited for edgings, as it produces few or no runners; and Reeves's Eclipse, a kind more valuable for forcing than for out-door cultivation, as, grown in-doors, it has a rich Pine flavour, but in the open air it is not so good. Another sort was also sent by Mr. Oldham, named Sir Watkin, a conical-shaped dark fruit, a cross between Sir Harry and Black Prince, but it did not earn the approval of the Committee.

Referring again to the new Strawberry Dr. Hogg, it may be said that it was raised by Mr. Bradley, the gardener at Elton Manor, who was also the raiser of Oscar, Sir J. Paxton, and other varieties. It is hardier and a better bearer than British Queen. The Rev. Mr. Radclyffe says of it—"This is A1 in every respect. It is in constitution a Queen, more regularly coloured. It is hardy, fine-foliaged, a good cropper, large, and Queen-flavoured." What better character could be given by such an excellent judge of the fruit as this genial Dorsetshire rector?

July 17th.—Messrs. Veitch & Son exhibited on this occasion another Nierembergia, named rivularis, very dwarf-growing, with large pure white flowers, having a yellow centre. It is a variety new to gardens, but was figured long ago by Miers in his Illustrations of South American Plants. It is low-growing and free-flowering, and at every node are glandular spots, which have the peculiar property of emitting roots, by means of which the plant spreads out into large patches, and may in this way be increased indefinitely. It was stated at this meeting that the Nierembergia shown at the previous meeting by Messrs. Veitch had been found to be quite new, and that it had been named in compliment to the exhibitor, N. Veitchii. The same firm had two handsome hybrid Rhododendrons, Princess Royal, with rosy pink blossoms; and Princess Alexandra, with pretty flesh-coloured flowers; and some very handsome stove and greenhouse plants. Mr. George Macintosh, of Hammersmith, had Pelargonium Lady Palmerston, with rosy pink flowers; and some plants of Pyrethrum parthenium flore pleno compactum, very dwarf and bushy, and remarkably free-blooming. From Messrs. E. G. Henderson & Son came

blooming plants of Desfontainea spinosa, which had been flowered out of doors; a double scarlet Pelargonium named Gloire de Nancy; the tricolor-leaved Lady Cullum, and others. Mr. John Mann, of Brentwood, had seedling Zonale Pelargoniums; and Mr. W. Paul, seedling plants of his Nosegay strain. Some fine and richly-coloured blooms of Mutisia decurrens were shown by Messrs. Veitch & Sons, but which were flowered by Mr. Pilcher, gardener to S. Rucker, Esq., of Wandsworth. I believe they were produced out of doors, and it would be interesting to know both the method of culture and how the plant looks in regard to healthiness of the foliage. I have seen one or two specimens out of doors in a sheltered position, but they were "measly-looking" things as the gardeners say, and flowered only at the tips of some lanky and rusty-looking shoots. Mr. C. J. Perry brought with him from Birmingham some excellent trusses of cut Verbenas, both seedlings and named varieties. Among the latter were William Dean, very fine indeed, the rich purple of this flower is very striking; Glowworm, Startler, Champion, very rich colour, pips large and very fine; Sylph, Mauve Queen, Rose Imperial, Cato, Mrs. Dean, Magnificans, Lord Leigh, Princess of Wales, Black Prince, Snowball, Leah, Cleopatra, a splendid flower, colour rich and very striking; Charles Perry, very fine; Pioneer, Ruby King, Fairy, Modesty, and Pink Queen. To show what Mr. Perry is doing as a raiser of Verbenas, it may be stated that out of twenty-four varieties shown by Mr. Perry on this occasion, eighteen of them were his own seedlings, exclusive of the following, shown for the first time:—Harry Law, deep rosy cerise with dark centre and large lemon eye, pips stout and of full size; a good exhibition variety—awarded a second-class certificate. Purpurea, crimson, suffused with purple, deep crimson centre, white eye; a good and striking colour. Brunette, bright crimson with dark centre and bright lemon eye; pips medium size, colour rich and telling. Auricula, purplish crimson, changing to purple with age, lemon eye enlarging and turning to white with age. The Friar, rosy pink with crimson centre, pips large and of great breadth and substance, the edges somewhat serrated. Gem, intense bright scarlet with white eye, medium pips; a fine exhibition flower. A special certificate was awarded to Mr. Perry for the collection. Seven of the foregoing flowers were sent out by Mr. Turner in the spring of the year—viz., Fairy, pale pink with rosy centre and edges; novel and fine, Cleopatra, Charles Perry, Mrs. Dean, W. Dean, Champion, and Magnificans.

R. D.

NOTE ON THE CULTIVATION OF AMHERSTIA NOBILIS.

[The following note on the cultivation of Amherstia nobilis appears in the last Number of the "Journal of the Royal Horticultural Society," the writer being Mr. Taplin, gardener to His Grace the Duke of Devonshire, at Chatsworth, by whom were exhibited the blooms referred to at page 85.]

The age of the plant is probably about twenty-five years; the height 5 feet, the circumference 45 feet. It is planted out in a house specially built for it, in a bed of soil about 6 feet square and 3 feet deep, raised above the level of the surrounding path. The soil is warmed to a temperature of about 85° by pipes underneath.

The soil is good open loam and sand, to allow free passage for water, of which it requires a large quantity during the growing season, both on the surface and also poured down a perpendicular opening to the heating pipes below, so as to give moisture with bottom heat. There is sufficient piping to keep the top heat at 70° even in severe weather. The following is the mode of treatment.

When the plant has flowered, a portion of the old soil is removed from the surface without disturbing the roots, and some nice fresh soil added. It will soon commence growing, when it must be kept shaded from the bright sun; for the young growth especially is very impatient of the sun's rays. I keep the plant sprinkled twice each day, and evaporating-pans constantly full of water. The plant generally makes two growths in the summer. The growing temperature is 75° at night, and from 85° to 100° by day.

In the autumn, when the wood begins to ripen, I give less shade, and reduce the supply of water for about three months, but do not allow it to be very dry, and keep some of the evaporating-troughs full of water during the winter.

Winter temperature 70° to 75°. In January I give more water, and the plant will begin to show flower by the end of the month, the flowers pushing out very rapidly and continuing to open for five or six weeks.

There have been this year fifty-five racemes of bloom open, and there are three more to open, in all fifty-eight, with from ten to sixteen flowers on each raceme. The greatest number of racemes with flowers open at one time was about twenty.

WINTER-FLOWERING PLANTS.

Perhaps there are few branches of gardening which give more pleasure to proprietors than a fine display of flowers in winter. All kinds and sizes are admired at that time, from the humble Snowdrop to the majestic Camellia. Though there are a number of stove and greenhouse plants which can be had gay in the dull months, yet there are many common things very easily forced, which will hold their own among the finest exotics we have, especially where a gay conservatory is kept up, or cut flowers required in quantity. An old favourite for this purpose is the Deutzia gracilis; though this plant is so generally grown, yet it seldom receives the attention it deserves, even by those who grow it largely for sale. We have for several years bought a number for early forcing, our own stock being prepared for later work; but as well-ripened plants are difficult to procure, we now prepare a few dozens for early work. Three years ago, when I commenced to get up a stock of these plants, several hundreds of young cuttings were put in, as one would Verbenas, and they rooted in nearly as short a time. They were then potted off singly into small pots, using loam, peat, and a little sand to begin with. The young plants were kept in heat, where they grew rapidly. A mild bed of leaves, with a frame placed over it, is most suitable for this purpose, though we often use the floor of a Peach-house, or similar structure. About midsummer a shift was given, and the plants were still kept growing freely, exposing them to air in proportion as they became near the size required. About the middle of July the plants were hardened, and gradually exposed to the full action of the weather, and afterwards plunged in coal ashes, fully exposed to the south. The young wood soon became hard, and ripened in good time. About the end of October the best of the plants were selected for early forcing, and taken under protection along with large Deutzias, and many other things prepared in the same way. The remainder of the small Deutzias were turned out into a space prepared for them in the reserve ground, to do as they might till they were required. It is a good system to have a number of all kinds of forcing plants kept in reserve, with the view of having something to fall back upon in case of misfortune.

The old Deutzias, after they have done their work for a season, are cut down close to the surfaces of their pots, and allowed to break. If rather late in the season they are helped with a little moist heat. They are then taken out of their pots, and a quantity of the soil taken off the roots. The plants are

then repotted with light soil (sandy loam and leaf mould), and grown on in heat till they are from 2 to 3 feet high, and nearly as much through. The sizes of pots are kept about the same, except when the roots of any of the plants may have been injured, then small pots and more sand in the soil are used. If any become very pot-bound they receive a larger-sized pot after they have broken and shown flower, which keeps them safe from drought at the roots, as a number of plants of different sizes have to be into flower by Christmas. The most promising are selected, placed in a gentle heat about the middle of November, and are kept moving slowly till signs of flower appear; and then more heat and moisture are applied till the buds begin to open. Then more air is given, and less moisture. In a short time afterwards they are ready for decoration or for cut flowers; and as one lot is taken out, as many more are placed in their quarters —thus keeping up a supply till they come in of their own accord.

When Deutzias are to be forced, like all other hardy plants they require to be protected from frost and heavy rain; and if a greenhouse temperature can be maintained for some time previous to the application of stronger heat they will flower freely and more regularly. We commence with a temperature of 45°, and increase it to 55° in process of forcing, and always taking full advantage of sun heat, shutting up early with moisture. The finest Deutzia I ever saw was had from the late Milne & Co.'s Nursery, Vauxhall. The plant appeared to be grown to the size required, and then pinched all over; fresh shoots would be emitted, and each top, when in flower, formed a small bouquet. These plants were always as much across as they were high, and no stakes were ever used to deform them. When these beautiful little plants are tied round trellises or stakes they are robbed of their beauty; they should be compact and hanging over the rims of the pot. When used for cut flowers the blooms should be taken before the blooms expand, as they do not last long after they are fully out; our last lot are now over for the season, and the earliest for next are nearly full grown.

A good companion to the Deutzia is the Prunus flore pleno. This little double Plum, if treated the same as the Deutzia (except turning out of pots in the reserve ground when wanted for flowering early, which does not suit it), makes a useful plant.

M.—(*Scottish Gardener.*)

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for July contains plates of the following plants:—

Meconopsis nepalensis.—A noble Papaveraceous plant, originally discovered by Dr. Wallich in the mountains of Nepal, and more recently by Dr. Hooker in the central dampest regions of the Sikkim Himalaya, where it grows abundantly at elevations of 10,000 to 11,000 feet above the level of the sea, and often ornaments the rank herbage that skirts the Pine forest. It is described as being a tall, robust, simple, or sparingly-branched herb, from 3 to 5 feet high, biennial (?), having stems often from 1 to 2 inches in diameter at the base, and erect racemes of pale golden or sulphur yellow flowers 2 or 3 inches in diameter. "A more stately and beautiful plant," says Dr. Hooker, "can hardly be imagined, except the Hollyhock, which it somewhat resembles in miniature."

Polystachya pubescens.—A South African Orchid, which is doubtless identical with the Epiphora pubescens of Lindley, who separated the genus Epiphora from Polystachya; but the two are now re-united. P. pubescens is con-

sidered to be the prettiest species of the unattractive genus to which it belongs. It grows less than a foot high, has fusiform pseudo-bulbs an inch or more in length, each producing two or three oblong-lanceolate leaves from 3 to 5 inches in length. The flowers are borne in erect spikes twice the length of the leaves, and are of a golden yellow, but streaked with red lines along the centre of the sepals.

Lobelia nicotianæfolia.—A native of the Neilgherry and other mountains of the Indian Peninsula and Ceylon. Seeds of it were sent to Kew by the late Mr. Allan Black, and it there flowered in a temperate-house in January last, attracting much attention by its striking habit and inflorescence. At Kew it attained 6 feet in height; but in its native country it is said to grow 10 and even 12 feet high. The leaves are narrow-lanceolate, 1 to 2 feet long, and the flowers, which are an inch across, are produced in dense racemes a foot or more in length, forming pyramidal summits of a pale lilac colour.

Ancylogyne longifolia.—"A most beautiful plant, with something of the inflorescence of Russellia juncea, introduced by Messrs. Veitch & Sons from Guayaquil, where it was discovered by Mr. Pearce. It is undoubtedly one of the finest tropical Acanthaceæ ever introduced into this country, and cannot fail to be a most important accession to our stoves." It is a glabrous, apparently suffruticose plant, with four-angled stems, ovate-oblong leaves from 4 to 10 inches in length, and drooping, elongated, branched panicles of bright purple flowers about 2 inches in length, and having conspicuous yellow anthers.

Angræcum Chailluanum.—Sent from the Gaboon country by M. Du Chaillu. It has stout stems from 4 to 6 inches long, broad leathery leaves, and greenish white flowers, of which the petals, sepals, and lip resemble each other, being narrow and about 1½ inch in length. The spur is long, flexuose, and of a yellowish green colour.

The FLORAL MAGAZINE for May and June contains the following plates:—

Tacsonia Van-Volxemii.—Figured in our present Number.

Rose Black Prince.—A large, deep, globular flower, scarlet shaded with black, and which has been described as a very dark Gloire de Santenay. It received a first-class certificate from the Royal Horticultural Society's Floral Committee in March last, when it was exhibited by Mr. William Paul, of Waltham Cross.

Rhododendron Denisonii.—A free-flowering hybrid Rhododendron raised by Mr. Bousie, late of Stoke Park, Slough, and in colour white, with a lemon blotch, and spotted with the same colour at the base of the petals. It requires a greenhouse temperature.

Hyacinth Sir Henry Havelock.—A splendid new variety exhibited by Mr. William Paul, in March last, and noticed in these pages at the time. "The colour of the flower," says the Editor, "is entirely new, nearer to Haydn than to any other variety, but of a darker and more intense colour, and possessed of a brilliancy, the absence of which in Haydn is its greatest fault. In one stage of the flower the colour, which it is alike difficult to paint or to describe, is that of a ripe Orleans Plum. The spike of the flower is long and massive. The flowers individually are of good average size and form,—certainly in advance of others in that class."

Tropæolums Beauty and Attraction.—The former is a large flower of a delicate sulphur colour, with a maroon crimson blotch towards the base of each petal; and the latter orange, with scarlet blotches. Both were exhibited by Mr. Williams, of the Fortis Green Nursery, Hornsey, at a meeting of the Floral Committee in April last.

Odontoglossum Cervantesii.—A pretty Mexican Orchid with pinkish white flowers, barred in concentric circles with crimson, the labellum, however, being white. It was introduced about twenty years ago.

Camellia Nonpareil.—A medium-sized flower of a delicate flesh colour, barred and striped with deep pink.

Kerria japonica variegata.—A variegated form of the single Kerria japonica, better known as the Corchorus. Judging from the plants exhibited at one of the spring shows by Mr. Turner, of Slough, it will prove a useful addition to hardy variegated shrubs.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society. — The last of the special shows for the season, the Rose Show, with which is incorporated the National Rose Show, was held in the conservatory and adjoining corridors on Thursday, June 28th. Although the hot weather which prevailed for some days previous to the Show, and on the day itself, was sadly against the quality of the blooms, those in several of the stands left nothing to be desired as regards their excellence; and the competitors being numerous the display on the whole was very good, and afforded much gratification to a large and fashionable company. Subjoined is a report abridged from the "Journal of Horticulture" of the subjects exhibited in the different classes, and the awards in each.

The Class for eighteen new Roses of 1864 and 1865 brought five competitors:—Messrs. Paul & Son, Fraser, Cant, Francis, and Keynes. In Messrs. Paul & Son's collection were Alpaïde de Rotalier, in good condition; Centifolia rosea, too thin; Rushton Radclyffe, fine, but colour a little gone; Alfred Colomb, magnificent flower, one of the best, but here again the colour was a little faded by the heat; Duke of Wellington, very bright scarlet, good shape, and excellent; Maréchal Niel, very good; Madame Victor Verdier, very fine; Madame Fillion, a beautiful flesh-coloured flower; Madame Charles Verdier, too flat; Princess Mary of Cambridge, good; Belle Normande, too washy in colour; Eugène Verdier, dark, inclined to show the eye. In Mr. Fraser's stand were Marguerite Dombrain, a fine full Rose; Maréchal Souchet, good; King's Acre, too coarse; Prince de Porcia, very bright and good; Pline, rough and thin; Gabriel de Peyronny, somewhat rough; Alfred Colomb, very fine. In Mr. Cant's stand were Joséphine Beauharnais, a fine light-coloured flower; Marguerite Dombrain, good, and somewhat similar to the preceding; Duke of Wellington, very good; Charles Rouillard, very fine; and Maréchal Niel. Mr. Keynes's collection contained large flowers, but wanting a little in refinement. There was a fine bloom of Xavier Olibo, which has, however, an awkward way of twisting itself about, and not opening freely; Général Jacqueminot does the same, but Xavier Olibo being stiffer in petal than the Général, this cause prevents it from opening at all sometimes, otherwise it would be a magnificent dark flower. Mr. Francis had amongst others Xavier Olibo, Souvenir de William Wood, &c.

In the Class for twelve trusses of any new kind Messrs. Paul & Son had a stand of Marguerite de St. Amand, a splendid Rose, of a bright flesh colour, and a decided acquisition. Mr. Keynes had Madame Moreau, very large and bright, but too saucer-like to suit my taste, especially for showing in this way. It will take a good place as a back-row flower, but it is not the style we want. Pierre Notting from Paul & Son was good, but it had a tendency to show the eye, which detracted from its merits. Mr. Cant had Marguerite de St. Amand, very good.

Awards—For eighteen new Roses of 1864 and 1865: first, Messrs. Paul & Son; second, Mr. Fraser; third, Mr. Keynes; fourth, Mr. Cant. For twelve of 1864: first, withheld; second, Messrs. Paul & Son. For twelve trusses of any other new kind: first, Mr. Cant; second, Mr. Keynes; third, Messrs. Paul & Son.

The stands for decoration were decidedly pretty, and most of them in good taste. Mr. Soder, gardener to Osgood Hanbury, Esq., Brentwood, had an oval stand with Fern leaves; springing from it was an oval frame with a glass vase at the base, and surmounted with another glass vase, all containing nice blooms of Roses. Miss Wint, of Brighton, had a stand composed of five tapering glasses, the centre one being tall, and glass stems coming from it to each of the smaller ones. Mr. Hedge had a very pretty stand with some fine flowers, and a beautiful Moss Rose bud on the top. Another stand, one of Mr. March's pattern, was very handsomely set up with abundance of Maiden-hair Fern interspersed through it. It will thus be seen there is a little deviation from Mr. March's original pattern, although there is hardly one,

even now, prettier than it, especially when tastefully set up.

Awards—For decorated baskets or vases of Roses: first, Mr. Marlow, gardener to J. Wigan, Esq.; second, Mr. Hedge; third, Mr. Soder. For bouquets: first, Mr. Chard; second, Messrs. Francis; third, Mr. Hedge.

In Class I., single trusses of seventy-two kinds, Messrs. Paul & Son, and Mr. Cant, of Colchester, had each very fine exhibitions. From the former came fine blooms of Xavier Olibo, Madame Boutin, Olivier Delhomme, Maréchal Niel, Gloire de Dijon, Devoniensis, Madame Vidot, Mrs. William Paul, fine violet crimson with a fiery centre; John Hopper, Comtesse de Chabrillant, Beauty of Waltham, Princess Mary of Cambridge, Madame Boll, Alba rosea, Baron Adolphe de Rothschild, Louise Magnan, Souvenir d'Elise, very large and beautiful; Rushton Radclyffe, Centifolia rosea, Louise de Savoie, Prince de Porcia, fine scarlet; Comte de Nanteuil, Lælia, Baron Gonella, and Louise de Savoie.

Mr. Cant had Marie Baumann, very large, rosy crimson; Madame Charles Wood, a fine crimson; Duc de Rohan, Xavier Olibo, Comtesse de Chabrillant, Madame Victor Verdier, Devoniensis, Niphetos, Marguerite de St. Amand, Victor Verdier, fine; and with few exceptions the whole of his blooms were remarkable for size. It may also be remarked that in these and some other stands the trusses were set up with buds.

Mr. Keynes had fine blooms of Madame Sertot, white; François Lacharme, John Hopper, Pierre Notting, Triomphe de Rennes, Gloire de Dijon, Mdlle. Bonnaire, very prettily tinged with rose in the centre; Moiret, Duchesse de Caylus, and Maréchal Niel.

Awards—Equal first, Messrs. Paul & Son, and Mr. Cant; second, Mr. Keynes; third, Messrs. Francis.

In Class II., forty-eight kinds, three trusses, there was a very fine display, particularly in the stands of Mr. Turner, of Slough, and Mr. Keynes. The varieties seen to best advantage were Olivier Delhomme; Virginal, beautiful in colour; Coupe d'Hébé, Mrs. Rivers, John Hopper, Gloire de Dijon, Souvenir d'un Ami, Charles Lefebvre, Xavier Olibo, Le Rhone, rich crimson scarlet; François Lacharme, Baron Gonella, Marguerite de St. Amand, Eugène Verdier, dark violet purple; Beauty of Waltham, Joseph Fiala, violet shaded crimson scarlet; Duchesse de Caylus, bright rosy crimson, and very full; Denis Helye, Alba rosea, Madame Victor Verdier, Comtesse de Chabrillant, Dr. Andry, Madame Boll, Prince of Wales, rosy crimson; Maurice Bernardin, La Brillante, Madame Vidot, General Castillane, Laurent Descourt, purplish scarlet, brighter in the centre, and many others which it would be tedious to enumerate.

Awards—First, Mr. Turner; second, Mr. Keynes; third, Messrs. Francis; fourth, Messrs. Paul & Son.

Class III., was for twenty-four kinds, three trusses. Here Mr. Cant took the lead with, among others, remarkably fine trusses of La Brillante, very bright in colour; John Hopper, François Lacharme, Marie Baumann, very large and full; Prince Camille de Rohan, Mdlle. Bonnaire, and Madame Charles Wood. Messrs. Paul & Son, who were second, had Princess Mary of Cambridge, La Ville de St. Denis, and Queen Victoria, large, white, shaded with delicate rose. Mr. Turner, fine trusses of Maurice Bernardin, Senateur Vaisse, Jules Margottin, Comtesse de Chabrillant, La Reine, Madame Knorr, Marguerite de St. Amand, and La Tour de Crouy, very large; and Mr. Keynes, Madame Charles Wood, Duc de Rohan, pretty buds of Madame Furtado, Victor Verdier, Madame Clemence Joigneaux, lilac rose; and Le Baron de Rothschild, deep crimson scarlet. Alfred Colomb, bright rosy red, came from Messrs. J. & C. Lee.

Awards—First, Mr. Cant; second, Messrs. Paul & Son; third, Mr. Turner; fourth, Mr. Keynes. Commended, Messrs. Francis.

In Class IV., single trusses of twenty-four kinds, Mr. Turner had a fine bud of Devoniensis, Duchesse de Caylus, very fine; Madame Joséphine Guyet, Madame Victor Verdier, Madame Furtado, Gloire de Dijon, Devoniensis, Jules Margottin, and La Reine; and in other stands were fine examples of several of the above, Senateur Vaisse, William Griffiths, Maréchal Niel, Madame Charles Wood, Charles Lefebvre, Victor Verdier, Le Rhone, Marguerite de St. Amand, Rubens, Lælia, Marie Baumann, and Alphonse Damaizin.

Awards—First, Mr. Turner; second, Mr. Cant; third, Messrs. Paul & Son; fourth, Mr. Keynes.

In the Amateurs' classes, all for single trusses, there were many excellent stands, and but few that could not be considered fair.

In Class V., forty-eight kinds, Mr. Hedge, Reed Hall, Colchester, took the first honours with a set in which we remarked fine blooms of Madame Charles Wood, a fine bud of La Boule d'Or, François Lacharme, Pierre Notting, Marie Baumann, Madame Villermoz, Souvenir d'Elise Vardon, William Griffiths, La Ville de St. Denis, Mathurin Regnier, and Anna de Diesbach. He had also a fine truss of Cloth of Gold, a variety which this year seems to be unusually fine, consisting of five blooms. Mr. Ingle, gardener to C. G. Round, Esq., Colchester, had Eugène Desgachés, cream, tinged with rose; Mrs. Rivers, Souvenir d'Elise, Devoniensis, George Paul, Lord Macaulay, very dark crimson; Madame Victor Verdier, Caroline de Sansal, and Maurice Bernardin. From Mr. Moffat, gardener to the Hon. Mrs. Maynard, Easton Lodge, Dunmow, came Empéreur de Maroc, Devoniensis, Beauty of Waltham, Gloire de Dijon, Madame Boll, and Impératrice Eugénie, small, white, tinged with blush. In the stands of other exhibitors

in the same class we noticed Joseph Fiala, Spotted Queen, carnation-striped; Gloire de Santenay, L'Enfant Trouvé, and Juno.

Awards—First, Mr. Hedge; equal second, Mr. Moffat and Mr. Ingle; third, J. Hollingworth, Esq.; fourth, Mr. Chard.

Class VI. was for thirty-six kinds. Here we noted Madame Bravy, Prince Léon, Madame Masson, violet, to which colour it changes from crimson; Mrs. Rivers, and Beauty of Waltham from Mr. Ingle; and from Mr. Hedge and others, Souvenir d'Elise Vardon, some 5 or 6 inches across; Cloth of Gold, Louise Magnan, Oriflamme de St. Louis, bright crimson; Anna de Diesbach, Charles Lawson, and Général Jacqueminot. André Leroy, a fine-coloured flower, was shown by Mr. Wright, gardener to Mrs. Ramsden.

Awards—First, Mr. Ingle; second, Mr. Hedge; equal third, Mr. Chard and Mr. Marcham; fourth, Dr. Cooper.

In Class VII., twenty-four kinds, the best exhibition was that of Mr. R. B. Postans, of Brentwood, who had fine blooms of Triomphe de Caen, violet crimson, with a scarlet centre; François Lacharme, Charles Lefebvre, John Hopper, L'Esmeralda, Prince Camille de Rohan, Empéreur de Maroc, Olivier Delhomme, and Madame Boll. Mr. May, gardener to C. Worthington, Esq., Caversham Priory, also exhibited Prince Camille de Rohan, Lord Macaulay, and others, in very good condition: and Mr. Dennis, Folkington, Madame Maurin, and Bougère Tea Roses, the one white, the other fawn. There were several other good exhibitions in the same class.

Awards—First, R. B. Postans, Esq.; equal second, Mr. May and Mr. Dennis; equal third, Mr. Plester and the Rev. Canon Fisher; fourth, Rev. V. Knox Child.

In Class VII., twelve kinds, the following were in fine condition—viz., Gloire de Dijon, John Hopper, Marie Baumann, Charles Lefebvre, Cloth of Gold, Madame Bravy, Senateur Vaisse, Auguste Mié, and Mdlle. Emain, a pretty white Perpetual.

Awards—First, Rev. V. Knox Child; second, R. B. Postans, Esq.; third, Mr. Dennis; fourth, Mr. Plester.

Class XII. was for the best twelve trusses of yellow Roses, consisting of not less than six kinds; and the only exhibitor was Mr. Hedge, to whom was awarded a first prize for Narcisse, La Boule d'Or, poor; Triomphe de Rennes, Celine Forestier, and L'Enfant Trouvé, a strong sport of Elise Sauvage; and Cloth of Gold.

In Class XIII., for the best collection of yellow Roses, Mr. Hedge was again first with Cloth of Gold, L'Enfant Trouvé, fine; Mélanie Oger, Narcisse, and Smith's Yellow. Messrs. Paul & Son were second with Gloire de Dijon, Vicomtesse de Cazes, Lamarque, Madame Falcot, Madame William, Louise de Savoie, Marquise de Foucault, and Auguste Vacher.

Tea-scented and Noisette Roses, though not sufficiently varied in colour to make an effective display, are always welcome on account of their fragrance. They chiefly consisted of La Boule d'Or, Triomphe de Rennes, Gloire de Dijon, Gloire de Bordeaux, Madame Bravy, Souvenir d'Elise, Joséphine Malton, Eugène Desgaches, Souvenir d'un Ami, some fine examples of L'Enfant Trouvé, Louise de Savoie, Homer, Alba rosea, America, Niphetos, and Celine Forestier.

Awards—For twelve trusses (Amateurs): first, Mr. Ingle; second, Mr. May; third, Mr. Hedge. For twelve trusses (Nurserymen): first, Messrs. Paul & Son; second, Mr. Cant; third, Mr. Keynes. For twelve single blooms: first, Mr. Cant; second, Mr. Hedge; third, Mr. Keynes.

Of Moss Roses only one stand was shown, that being from Messrs. Paul & Son, who were awarded a first prize. It contained Salet, the Crested Moss, Bath White, Comtesse Murinais, and one or two others.

Pot Roses formed a very effective bank, the plants being in profuse bloom, though the flowers were not individually so attractive as earlier in the season. President from Mr. Turner, and Maréchal Niel from Mr. William Paul, were especially fine; and Rushton Radclyffe, Pierre Notting, and other recent varieties, were also well represented.

Awards—For twenty-four: first, Mr. Turner; equal second, Messrs. Paul & Son and Mr. William Paul. For twenty new Roses: first, Messrs. Paul & Son; second, Mr. Wm. Paul.

Royal Botanic Society.—The July Show, of which fruit always constitutes an important feature, took place on the 4th; and, notwithstanding that the day was cold, with occasional showers, there was a fair, even a large attendance of visitors. We have used the word "fair" inadvertently, and without intending a play upon words, for, as usual, the fair sex were greatly in the ascendant as regards numbers.

Of Pines nearly a hundred fruit were exhibited, and some of them were magnificent. Queens in several instances were of extraordinary weight, such, indeed, as have rarely been seen at the London shows of late years. Mr. Ward, gardener to F. N. Miller, Esq., of Bishop Stortford, was first with a handsome fruit of 7 lbs. 6 ozs.; the second prize, one from Mr. Brice, gardener to J. Lermitte, Esq., Finchley, weighed 5 lbs. 4 ozs.; and that to which the third prize was awarded, and which came from Mr. Young, gardener to Crawshay Bailey, Esq., Aberaman, weighed 5 lbs. Mr. Ward had in addition a dozen Queens averaging 5 lbs. 4 ozs. each, all of which were handsome beautifully-ripened fruit. Mr. Hannan, gardener to R. T. Crawshay, Esq., and Mr. Young, exhibited excellent Providences, the heaviest weighing 10 lbs.;

and good fruit of the same variety, though not remarkable for weight, came from some other exhibitors. Of Grapes upwards of 200 bunches were shown, besides several good baskets. In the class for three kinds, Mr. Meredith was first with Black Hamburgh, equally fine with those which he usually exhibits, Black Prince, and Trentham Black; and in the class for Black Hamburgh he had a first prize for three bunches weighing 10¾ lbs., beautifully coloured, and the large even-sized berries densely covered with bloom. An equal first prize was awarded in the same class to Mr. Clement, East Barnet, for very fine bunches; and though these two exhibitors far out-distanced all other competitors, several excellent bunches were exhibited. The only perfectly ripe Muscats were those from Mr. Turner, which had acquired that beautiful amber tinge which is so desirable, and, at the same time, so rarely seen even at the July shows. To secure its thorough ripening the Muscat of Alexandria requires a much higher temperature than it generally receives. Good bunches of Black Prince were shown by Mr. Turnbull, gardener to the Duke of Marlborough, at Blenheim, and Mr. Sage, gardener to Earl Howe; and of West's St. Peter's by Mr. Allport, gardener to H. Ackroyd, Esq. There was a fair show of Melons, and Peaches, and Nectarines were in most instances very fine. The best Strawberries came from Mr. Widdowson, gardener to J. H. Barnes, Esq., Rickmansworth; and of Cherries we noticed fine fruit of the Black Tartarian from Mr. Turner, Slough, and Mr. Hill, gardener to R. Hanbury, Esq., The Poles, Ware.

In the floral department the most noticeable specimen among the stove and greenhouse plants was a worked plant of Ixora salicifolia, shown by Mr. Peed, gardener to Mrs. Tredwell, Lower Norwood; it stood about 5½ feet high, and was profusely studded with great heads of orange flowers. A finer specimen Ixora we do not remember to have seen. Fine-foliaged plants (including Ferns), Heaths, and Pelargoniums, were well represented; and some very good Roses in pots came from Messrs. Paul & Son. For new plants and seedling florists' flowers numerous certificates were awarded to Messrs. Veitch, Bull, Williams, F. & A. Smith, W. Paul, and Turner—to the last three for Pelargoniums.

Botanical Appointment. — Mr. W. H. Baxter, Curator of the Oxford Botanic Garden, has been appointed to the curatorship of the University New Park, where, we understand, it is in contemplation to establish an arboretum.

The Reynolds Hole Testimonial.—On the evening of the Royal Horticultural and National Rose Show the Rev. S. Reynolds Hole was presented with a handsome silver tea-urn at a dinner held at Anderton's Hotel, Fleet Street. Some months ago the fact was noticed in these pages that a subscription had been set on foot for the purpose of marking, by a suitable presentation, the obligations which the Rose-growers and Rose-lovers of this country owe to this gentleman for his exertions in originating and maintaining the National Rose Show, and in extending a love for the culture of that flower by his genial writings and example. The Rev. H. H. Dombrain presided.

Fruit Tree Plantations on Railway Embankments — Plantations of fruit trees, consisting of Currants, Vines, and even tall-stemmed trees, such as Plums, have been established at various parts along the Orleans line. The plantations, which have been well made and kept up, are established in furrows along the sloping side of the bank. In this way, doubtless, a considerable quantity of fruit could be secured from ground by the sides of our railways at present lying idle, or worse than idle, for such banks are nurseries whence weeds are freely disseminated over the adjoining lands.

Dr. Hooker has had the distinguished honour of being elected a corresponding member of the French Academy of Sciences, having obtained thirty-two out of thirty-seven votes.

At a meeting of the Imperial and Central Horticultural Society of France Messrs. Thibaut and Kételeer, of Paris, exhibited an Orange tree, obtained by grafting the under side of the midrib of a leaf-cutting. The operator was a gardener named M. Auber. The leafstalk rooted, and the graft took, and eventually produced a shoot; but the most singular circumstance of this case was, that of the stem which was eventually produced, one half appears to be formed by the leafstalk and base of the midrib, which have thus become ligneous and persistent, and the other half by the graft. Two ridges on the stem mark the edges of the leafstalk and midrib. At a subsequent meeting M. Verdier directed attention to a mode of avoiding Rose suckers. This simply consists in working dwarf seedling Briars beneath the seed-leaves.

OBITUARY.

Mr. William Cock, an extensive market gardener at Chiswick, a few years ago well known to the frequenters of the metropolitan flower shows as a highly successful cultivator of the Pelargonium, died at that village on the 1st of July, at the age of sixty-three. For many years his favourite flower was the Pelargonium, and few indeed there were who approached him in the extraordinary size and beauty of the specimens which year after year he was in the habit of exhibiting. The cultivation of these was with him entirely a labour of love—they were in fact the hobby to which he devoted what time he could spare from the superintendence of his highly-culti-

vated fields, surrounded by neatly-kept hedges, and in which it would have been scarcely possible to discover a weed. His neighbour, Mr. Edmonds, pays the following tribute to his memory in *The Gardeners' Chronicle*:—"Mr. Cock was one of the earliest and also one of the most successful contributors to the first shows of the Horticultural Society at Chiswick, the contemporary of Green and Barnes, and others whose names have long been household words amongst exhibitors. His favourite flower was the Pelargonium, and those who remember the exhibitions that were held in the Society's Garden at Chiswick about the year 1835, will not have forgotten the handsome and well-managed specimens which were shown by Mr. Cock. His were invariably the plants that carried off the first prizes, although his friend Mr. Catleugh sometimes ran him hard. He had a correct eye and good taste, and no one in his day knew better than he what constituted a good Pelargonium flower. He was also a most successful cultivator of the Balsam. Some specimens exhibited by him about the date already mentioned were wonderful examples of high cultivation. Four plants only could be pressed into a large van. Each plant measured 6 feet in height, and as much in diameter, one only having been grown in a light. Of late years Mr. Cock had given up the cultivation of his former favourites, and spent his leisure time in growing Camellias, Epacrises, seedling scarlet Pelargoniums, &c. His habits were of the most retiring kind, and his charity to his poorer neighbours of the most liberal but unostentatious character. He was indeed a true friend to his neighbours, and will be missed by many—by none more than myself."

M. Marius Porte, to whom we owe the introduction into Europe of many valuable plants from the Brazils and Philippine Islands, died at Manilla on the 15th of January last. We learn from a foreign horticultural journal that his last illness resulted from the fatigue which he had endured during a journey in the interior of Luzon.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Stove.—Stove plants are now growing freely, Allow more air, and inure them to more light by reducing the shading; this will help to keep the growth compact, and will assist plants done blooming to ripen their wood. Regulate climbing plants. Attend to potting, &c., plants to flower late in the autumn; these may now be fully exposed, to arrest their growth and induce an early bloom. *Orchids.*—Those kinds which appear to have done growing may be gradually exposed to more light and a drier atmosphere, preparatory to putting them to rest. Keep up a moist atmosphere in the case of plants in full growth, and see that those on blocks, &c., are kept duly moistened, otherwise a cessation of growth will take place too soon. Growth should be encouraged to its utmost limits, if fine strong plants are desired.

GREENHOUSE.

Camellias and Azaleas.—Camellias will by this time be mostly out of doors; attend to their wants with water, and guard against their being blown over by the wind. Azaleas which have formed their buds may be at once set out in a sunny exposure. Protect the pots, however, from being acted on by the midday sun, or injury to the plants, if not death, will be the consequence. *Cinerarias.*—Pot off cuttings as soon as struck into small pots, and repot as soon as the roots have fairly reached the sides of the pots. Cuttings may still be put in for a succession. Seedlings should also be repotted and used in a similar manner; mildew is the principal evil to guard against. Sulphur the leaves immediately on its appearance. They are easily grown if they receive proper attention at the proper time, and no class of flowers sooner repays the little care bestowed on it than the Cineraria, with its lively flowers in early spring. *Pelargoniums.*—Cutting down should not be delayed, or the young stock will be late. Pot off young plants as soon as sufficiently rooted. The strongest of these intended for specimens should be selected and have an extra shift this month, that a considerable growth may be made in the autumn. Seed, as it ripens, should be sown in pans or broad-topped pots, which should be slightly shaded in very bright weather. The first-cut-down plants—those intended for early bloom next spring—will be sufficiently broken to be shaken out of the old soil towards the end of the month, and after being disrooted they should be repotted in fresh soil, in pots a size smaller. Place them in a frame or close house for a time, keeping them near the glass, and closely shading during the day. Dry the plants every morning by giving air, and harden them gradually as the roots reach the pots. Fancies require very similar treatment; the soil, however, should be a little lighter.

CONSERVATORY.

Give air in abundance at every opportunity, to keep the wood from drawing. This is the more necessary from the amount of shade required to render this structure comfortable in hot weather. Keep as few extra plants in the house as possible, in order to give the proper treatment to the permanent stock. Bring forward a supply of Liliums, Scarlet Pelar-

goniums, Fuchsias, Gladiolus, &c., for the show-house, as well as Balsams and other showy annuals.

FORCING.

If the leaves in the earliest-forced vineries and Peach-houses are turning yellow, the sashes may be removed at once. Continue a dryish heat and good ventilation to Grapes now colouring. The last house should be finally thinned; Muscats, if not ripe, will want fires in wet weather. *Cucumbers.*—Sow for winter, if not already done. *Melons.*—Maintain a steady bottom heat to advancing crops; turn out the last crop. *Pines.*—Fruit for autumn and winter should now be showing. Keep the syringe from the fruit while in bloom. Shift succession plants into their fruiting pots, and plant out. If grown on the open-bed system plenty of air is indispensable at this stage.

KITCHEN GARDEN.

Let the remains of the spring crops be cleared off the ground directly they are over, to make room for additional plantings of Broccolis, &c. Sow Spinach to stand the winter, and plant a breadth of Endive. The usual hoeing and cleaning among growing crops of all kinds must be attended to. Sow a good breadth of Turnips to stand the winter. Cabbage for the first crop should be sown without delay. Cauliflowers to stand the winter in frames and for hand-glasses should be sown from the 18th to the 25th, according to the locality. Sow towards the middle of the month Onions and Lettuces for standing over the winter. Earth up Celery, Leeks, and Cardoons, for the earliest supply.

HARDY FRUIT.

Proceed with cutting back, as advised last month, and nailing in the summer wood. Keep down aphides. The sooner Strawberry plantations are made the greater the chance of a crop next season; rich deep loamy soil, with a good dressing of dung, is the most suitable for them; remove runners from established plants, unless wanted for stock.

FLOWER GARDEN AND SHRUBBERY.

Let everything wanting support be provided in due time with proper stakes, &c. Attend strictly to neatness in the borders, lawns, and gravel walks. *Roses.*—For aphides the usual remedy of syringing with tobacco-water has the desired effect, if applied in time; but where honeydew has covered the leaves, a soft brush and water is the only method of cleansing them, taking care to search the under side of the foliage: help, however, may be expected from ladybirds, whose larvæ, known among hop-planters as "niggers," do great execution among the aphides. Be careful, therefore, not to disturb ladybirds when seen near the plants. Continue to remove decaying blossoms as before directed. Liquid manure should now be freely administered. The doubtful autumnal bloomers, as William Jesse, Duchess of Sutherland, &c., will be much more certain of flowering late if half of the strong shoots of this year are now reduced to half their length.

FLORISTS' FLOWERS.

Auriculas.—Give the plants a good fumigating, to destroy any green fly that may infest them. Early in this month the general repotting should take place, using well-prepared sweet soil. The pots, if old, should have been well washed; the size must depend on the strength of the plant; three and four inch pots will be suitable for the greater part of them. Use plenty of drainage. Young plants that have not yet flowered, and that are in small pots, will require repotting into a larger size after reducing the ball of earth. Seedlings should be encouraged to grow, by potting the strongest of them singly; the weak plants may be put three into a pot, for a time, until they are large enough to be treated in the same manner. *Carnations and Picotees.*—Proceed with the general layering of these without delay; all should be laid down by the 20th of this month: if a week earlier so much the better. Those in beds should have been layered in the latter part of July, as they do not root so readily as when grown in pots. Transplant pipings into sandy soil as soon as struck, to encourage a good growth before they are potted for wintering. Seed is best secured by placing small glasses immediately over the pod, keeping all wet from it, but allowing plenty of air. *Dahlias.*—Continue regularly to water over the foliage every evening during dry weather, and give a good watering at the roots occasionally, according to the weather. If not already mulched it should be done without further delay, using partly decomposed manure. If the plants are attacked with the black fly, the best remedy is to make them grow as fast as possible, so as to grow out of it. Defer thinning the shoots and disbudding for a time, and these operations should be performed but sparingly at first, leaving a considerable number of buds on the largest varieties. As soon as they are sufficiently long, tie out the side shoots securely to stakes of a smaller size than those used for the centre of the plant. *Pansies.*—Plant out young stock as soon as rooted, and continue to put in cuttings; the surface of the beds containing the plants first struck should be often stirred. If a large increase is required, the tops may be taken off and put in as cuttings. Seed should now be sown, and any plants that are attacked with mildew ought to be sulphured. *Pinks.*—Transplant cuttings from the piping-bed into light sandy soil, choosing a dry day. Pinks do not like being saturated with wet immediately after being planted. The soil should be free from wireworm. The beds after planting out should often be examined for grubs, which are very destructive to young plants.

Primula sinensis filicifolia fl. rubro pleno

F. Waller lith. 18 Hatton Garden

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J. Waller lith. 18 Hatton Garden

NEW DOUBLE CHINESE PRIMROSES.

WITH AN ILLUSTRATION.

THE double-flowered varieties of the Chinese Primrose form a group of considerable extent, as well as one of great beauty and interest. The old double rose-coloured and double white varieties of former days, showy and attractive as they were, are far surpassed by the modern kinds obtained within the last six or eight years, and of which that represented in our plate, under the erroneous name of magnifica, is one of the most novel and most charming.

The first step in advance beyond the original double-flowered varieties of this useful plant was the acquisition of the brighter-coloured fringed-petaled *atro-rosea plena*, which was first shown by Mr. Turner, the larger and more imposing flowers of which are no doubt due to its very robust and vigorous constitution. To this followed two semi-double varieties, named *nivea plena* and *rubella plena*, exhibited by Mr. Bull—varieties which were said to have the property of reproducing similar semi-double forms from their seeds. Since then the progress made in the improvement of the flower has been very rapid, and many fine, full, double sorts of various colours have been obtained.

The chief exhibitors of these later double-flowered varieties have been Messrs. F. & A. Smith, of Dulwich, and Messrs. Windebank & Kingsbury, of Southampton, the different sorts having, however, as we are given to understand, had their origin in the same establishment—namely, the nursery of the latter-named gentlemen, who, it is said, have succeeded in obtaining a race of Chinese Primroses, among the seedlings of which a considerable per-centage of double flowers generally occurs. We use above the expression, "it is said," because we ourselves have not succeeded in raising anything beyond single-flowered plants from seeds obtained from this source. The principal novelties which have appeared from these two collections bear the following names:—*Delicata*, *Fairy*, *Rubra grandiflora*, *Purpurea erecta*, *Queen of England*, *Glen-Eyre*, *Kermesina splendens plena*, and *Magnifica*. The varieties alluded to in the previous remarks all belong to the original race, which has the leaves ovate in outline; but some few years since the late Mr. Kay, of Finchley, obtained amongst seedlings of the common sort a sport in which the leaves were much more elongated, so as to acquire an oblong figure, and these leaves being deeply pinnatifid, with toothed lobes, somewhat resembling Fern fronds, obtained for the sport the name of filicifolia, or Fern-leaved. This sport, of which both rose-coloured and white-flowered single varieties were at length obtained, was let out by Messrs. E. G. Henderson & Son.

During the past spring the variety we now figure, PRIMULA SINENSIS FILICIFOLIA RUBRA PLENA (a long name truly), or the double red Fern-leaved Chinese Primrose, has been produced at one of the meetings at South Kensington by Mr. Toombs, gardener to W. S. Roots, Esq., of Kingston-on-Thames. It is a remarkably compact-growing plant, with full double flowers of a deep rosy tint, paler at the edges, and very justly received a first-class certificate. As the first double-flowered form of the Fern-leaved race, it must be regarded as a most important addition to the already extensive group of Chinese Primroses.

We cannot do better than add here, chiefly from the "Proceedings" of the Royal Horticultural Society, the several paragraphs in which the modern double-flowered varieties alluded to in the above brief sketch have been described:—

"*Primula sinensis atro-rosea plena.*—March 8th, 1860.—From Mr. C. Turner, Slough. This beautiful plant was awarded a first-class certificate of merit. It proved to be a variety of vigorous habit, producing umbels of numerous large double flowers, which were fully

1½ inch in diameter, and of a deep rose colour, fringed on the margins of the segments as in the variety called *fimbriata*, of which this is a double-flowered form, accidentally produced amongst seedlings of the common fringed sort."

"*Primula sinensis* (fimbriata) *nivea plena* and *rubella plena*.—March 26th, 1861.—From Mr. W. Bull, Chelsea. These were two semi-double varieties of the Chinese Primrose, of which it was stated that the plants obtained from seed would yield similar double flowers. The flowers themselves were less double than in some fine varieties already known; but it was thought that the present being more readily increased than the choicer varieties already mentioned, would form a useful decorative object, and a commendation was therefore awarded to both forms."

"*Primula sinensis* (fimbriata flore pleno) *delicata*.—April 1st, 1862.—From Messrs. F. & A. Smith, Dulwich. A very fine double Chinese Primrose, obtainable from seed. It was of vigorous habit, with bold, full, double flowers, measuring nearly a couple of inches across, fringed, white, changing to a delicate blush. In addition to the duplicature of the segments of the corolla, the central organs were converted into small flowers, two or three of which were observed in most of the blossoms, which were, consequently, very full to the centre. This was one of the finest forms of double Chinese Primrose which has yet been produced, fully equal in merit to the variety *atro-rosea*, exhibited at some of the earlier meetings of the Committee. It was awarded a first-class certificate."

"*Primula sinensis* (fimbriata flore pleno), *The Fairy*.—April 9th, 1862.—From Messrs. F. & A. Smith, Dulwich. A dwarf-habited and very double sport of the fine double flesh-coloured Chinese Primrose noticed previously under the name of *delicata*. It was commended."

"*Primula sinensis* (fimbrata flore pleno) *rubra grandiflora*.—April 9th, 1862.—From Messrs. F. & A. Smith. A double, fringed, rose-coloured variety, not so deeply coloured as *atro-rosea*, but withal a very useful and desirable plant if reproducible, like *delicata*, from the seeds."

"*Double Chinese Primroses*.—March 18th, 1863.—From Messrs. F. & A. Smith, Dulwich. Under the names of *delicata* and *rubra grandiflora*, Messrs. Smith last year exhibited two remarkably fine double Chinese Primroses, which were said to have the property of increasing themselves from seeds. A group of seedlings from these plants was now shown, all perfectly double, and reproducing the two colours of the originals. It was awarded a special certificate."

"*Primula sinensis*.—December 8th, 1863.—From Messrs. F. & A. Smith, Dulwich. One variety, called *purpurea erecta*, was a very large double, fringed flower of a purplish rose; another, called *Queen of England*, was a large, double, fringed blush, both quite equal in quality to the double blush and double rose-coloured varieties already awarded first-class certificates, but not thought distinct enough for further reward."

"*Primula sinensis Glen-Eyre*.—March 21st, 1865.—From Messrs. Windebank & Kingsbury, Southampton. A fine double form of Chinese Primrose, of dwarfish habit, with deep purple rose flowers. First-class certificate."

"*Primula sinensis kermesina splendens plena*.—March 21st, 1865.—From Messrs. Windebank & Kingsbury. A beautiful and thoroughly distinct variety of Chinese Primrose, with good double flowers of a shaded carmine rose. This was quite an acquisition. First-class certificate."

"*Chinese Primroses*.—March 20th, 1866.—A fine collection of twenty came from Messrs. Windebank & Kingsbury, of Southampton, who received a special certificate for the collection, and first-class certificates for the following varieties—viz., *P. sinensis magnifica*, rosy pink, very double; *alba gigantea*, large, single white; *filicifolia rubra*, single, very large, glowing rosy purple, beautiful in colour; and *filicifolia alba*, a fine single white. Mr. Toombs, gardener to W. S. Roots, Esq., Kingston-on-Thames, received a first-class certificate for *P. sinensis filicifolia rubra plena*, the first of a new strain of double-flowering Fern-leaved varieties, and, as such, an important acquisition. The flowers were perfectly double, of a purplish rose, but paler at the edges of the petals."

M.

COBÆA SCANDENS VARIEGATA.

What a different appearance this climber has when planted out, and when scope is allowed it to develope its beauties, from that which it has when grown in pots, for it then often presents an unsightly appearance. At this place we have some plants in our large conservatory; they were planted last season, and are now in fine condition, being more than 20 feet high. They are trained, or rather tied, to a single wire, and have had but little attention paid them further

than picking off any unsightly leaves, and occasionally stopping some of the strongest shoots. One of the plants now forms a most magnificent column of variegation, contrasting well with the surrounding objects.

I strongly recommend this plant where rapid growth is required, and there is plenty of room; when confined, either as regards its roots or top, it soon becomes rusty. I give the preference to the variegated Cobæa, considering it in every respect superior to the plain-leaved kind. It delights in good soil. Our plants were planted in a good barrow-load of equal parts of strongish loam and leaf mould; in this compost they thrive remarkably well.

Wrotham Park. JOHN EDLINGTON.

REMARKS ON STRAWBERRIES AND STRAWBERRY GROWING.

THE Strawberry crop of the present season has on the whole been a deficient one, for though in some places Strawberries have been very abundant and fine, in others they have been very few. This is easily accounted for. The two previous summers have been very dry, and Strawberry plants in exposed situations where the soil is naturally thin and light, suffered much from drought. It has only been by manuring and constant heavy waterings the whole of last summer that good crops have been obtained this season on such soils; where this has not been done the crops this season have been very deficient. Young plantations of Strawberries, where the soil is naturally a deep rich loam, have borne heavy crops of fruit.

I have grown most of the kinds of Strawberry that have been sent out during the last twenty years, and I have generally given them a fair trial, in most cases extending over a period of three or four years; the result has almost invariably been, that after a fair trial I have thrown them out of my collection altogether, and of the few sorts which I have retained I have generally limited my stock rather than extended it. I have had to fall back on my old sorts and extend their cultivation. If I had to limit the kinds I grow to three, I do not know of any three which I would select in preference to Keens' Seedling, British Queen, and Elton. I grow a dozen or more kinds at present; but no three that I grow, nor do I think any three kinds taken from the largest list, will produce so much fine fruit and furnish a supply for so long a time as Keens' Seedling, British Queen, and Elton. These are very old sorts, and too well known to require any description here. Sir Harry is a good useful kind, it is a great bearer, and furnishes a succession of fruit for a long time, but its coarseness is a great drawback. Jucunda is also a good kind, and so are President and Frogmore Late Pine. Eleanor does well in some places, and is a fine showy fruit; but with me it bears badly. Duke of Malakoff, Empress Eugénie, Carolina Superba, Sir Charles Napier, Oscar, Trollope's Victoria, Princess Frederick William of Prussia, Nimrod, Prince of Wales, and Admiral Dundas, have none of them done so well with me as to make me wish to extend their culture.

My mode of cultivation is very simple, and as many will now be making new plantations of Strawberries, I will briefly detail it. I have the runners layered in small pots as early in the season as a sufficient number can be got. They are well watered if the weather is dry, and they soon get well rooted, and are planted out before the roots become too much matted together. The ground for their reception is mostly (indeed it ought always to be), in good condition; it is not manured at the time of planting, but is either trenched or dug very deeply. I may here remark that the soil, when it is naturally thin, should

have a heavy dressing of manure, and should be dug deeply. I plant them in rows 2 feet apart, and about 20 inches from plant to plant; this I consider ample room for Keens' Seedling and all Strawberries of similar growth. Queens, Eltons, Eleanors, and others of similar growth I plant in rows of from 26 to 28 inches apart, and about 24 inches apart from plant to plant; this I consider, in general, sufficient width. If the land be a very deep rich loam the rows may be a little wider; but I do not think there is much advantage in it, especially if the foliage does not well cover the ground, as the latter then gets very parched in dry, hot weather. All runners are kept down by being cut off as they appear, and the ground between the rows is stirred two or three times with the hoe to keep down weeds, &c.

Early in the autumn, before severe frosts set in, a little partly-rotted manure is put around the plants; this protects the crowns from injury from frost during the winter, and by spring the soluble portion is washed into the soil by the rains, thereby greatly benefiting the plants and leaving a nice thin layer of clean straw for the fruit to rest on. In severe winters the plants will sometimes get partially lifted out of the ground by the frost; when this occurs, early in March, before the plants begin to grow, and whilst the soil is moist, I go over them and press them into the ground with my feet. When done soon enough, this does not injure the crowns in the least, and the plants do much better afterwards than if left partially lifted out of the ground.

After the crop has been gathered the following season all the runners and most of the old leaves are cut clean off, the ground between the rows is forked over or very lightly dug, all runners are cut away as they appear, and the ground is stirred once or twice before the autumn. A good dressing of rotten manure is again placed about the plants. When the crop of the following season is over they again receive similar treatment. I do not consider it profitable to leave the plantations after the fourth year. It is much better to destroy them then and depend on a succession of younger plantations.

With regard to watering, there is no doubt that after the fruit is set good soakings of water in dry weather are very beneficial by improving the size and quality of the fruit. In the absence of rain heavy waterings greatly promote the growth and vigour of the plants after the crop is gathered. Slight or partial waterings are of little, if any, advantage. If watering be attempted at all, it should be done thoroughly. There are many places no doubt where this can be done, but there are also very many where it cannot be attempted. I do not myself water the plants after they are first planted. Strawberries do very well here in general, and only suffer in extremely dry seasons.

Stourton. M. Saul.

A FEW NOTES ON ZONALE AND NOSEGAY PELARGONIUMS.

On no class of plants has there been so much attention bestowed during the last few years as on the Zonale and Nosegay Pelargoniums. At present we have so many, that it is somewhat difficult to make a selection of the very best; but as I spent a few hours at Chiswick some days ago, where there is one of the best collections I ever saw, my notes of what I considered the best may not be uninteresting to the readers of the Florist and Pomologist, for most gardeners are now making such arrangements as will ensure the best display another season. Before, however, I advert further to these varieties, I may mention that there are others which are very good and suitable for particular purposes, but all of those which I shall mention are of good habit and free-flowering, except the variegated kinds, which I think are best (at least a

great many of them), with their flowers picked off, for then the beauty of their foliage is seen to greater advantage.

Among scarlets of the brighter and crimson shades, I should prefer Clipper, Glow, Commissioner, Manfred, Lucien Tisserand, President Reveil, and Adonis.

Of the lighter shades of scarlet down to rose, I should choose Hector, Forester, Viceroy, Bonnie Dundee, Roi d'Italie, Excellent, Tintoret, and Rebecca.

Of the white varieties, I should prefer Madame Vaucher, Purity, and Virgo Marie. I consider Purity to be the best of the whites yet out.

Among the painted and salmon varieties, I would give the preference to Amelina Griseau, Fanty, Monsieur Barré, St. Fiacre, Rosebud, Auricula, and Eugénie Mezard. This section makes a very pleasing bed.

As regards the pink shades, my choice would fall on Christine. Madame Barré, Helen Lindsay, Wiltshire Lass, and Beauté de Suresnes, are all distinct shades of colour.

Among the Nosegays, I prefer Stella, Cybister, Amy Hogg, Orange Nosegay, Le Grand, Indian Yellow, and Waltham Seedling.

Of the gold-leaved varieties, I would select Golden Christine, Circlet, Glow-worm, Beauty, Gaiety, Mrs. Pollock, Creed's Seedling, and Golden Fleece.

Among the silver-leaved varieties, I think most of Mountain of Snow, Flower of Spring, Mrs. Lennox, Silver Chain, Countess of Warwick, and Brillant Superbe.

The above are first-rate either for bedding or pot culture, and I would strongly recommend all gardeners who may go to London, to try and pay Chiswick a visit, and they will be amply rewarded for their trouble.

Crabwood, Southampton. J. C. Higgs.

REMARKS ON FRUIT TREE CULTURE.—No. 12.

It is a question whether root-pruning, properly so called, as applied to Peaches and Nectarines, is always the most judicious course that the operator can pursue whenever the necessity for a check upon luxuriant growth arises. So far as my experience enables me to judge, I am decidedly opposed to any extensive mutilation of the roots. It must be remembered that we possess in disbudding and defoliation a considerable power of control over the formation of roots, which arises from the fact that the action between the foliage and branches on the one hand, and the roots on the other, is reciprocal, and by checking the development of the former during the growing season, we not only interfere with the formation of roots, but prevent that excessive storing up of strength for future exertion, which results the following season in an over-luxuriant woody growth. Again, if during the progress of these manipulations we can so modify our treatment as to produce a good supply of fruitful wood, and at the same time can induce that fruit to set and swell off, we are still better able to dispense with any severe mutilation of the roots, because, if the trees show any signs of excessive luxuriance of growth, it is easy enough to leave double the number of fruit, or even more than that, which will so far exhaust the energies of the tree as in most cases to interfere very materially with the growth, and do its part in preventing a greater degree of luxuriant development than such as is absolutely necessary to keep up the strength and increase of the tree. On the other hand, there are often cases in which this fruit-bearing condition cannot be brought about, because, as I have before observed, the growth is so rapid as to cause the fruit to fall off abortive, and when this is observed, instead of adopting any severe mutilation of the branches, it is better to allow a more free development of growth, and at the

proper season to lift the tree entirely and replant it at once. I find this infinitely preferable to cutting the roots entirely off at a certain radius from the stem, which is all very right and proper in the case of pyramids, and all hardier fruits, but is scarcely applicable to so tender a tree as the Peach, nor is it so likely to be attended with the desired success as a careful lifting and replanting is calculated to produce. This will conquer the most obstinate constitutions, and bring about a more healthy growth of fruitful wood, and in less time than can be attained by any severe mutilation of the roots.

I have now touched upon most of the leading principles connected with the working and management of the roots and branches, and shall conclude my observations on Peach and Nectarine culture with a few remarks on some of the minor details, such as watering, protection, mildew, and insects.

The application of water to the roots, more particularly during seasons of drought, is an absolute necessity, and must be included in any good system of management. The quantity necessary to be applied will have to be regulated by the amount of rain during the season. In times of drought three thorough good soakings will be sufficient; but when the rainfall is sufficient to keep the ground in a moist condition it will only be necessary to take care that the trees have an ample supply when the fruit commences to swell off after stoning. In order to ensure an equable distribution of the water, it is best to prick up the surface lightly, and then draw the earth in a basin-like form at a certain radius from the stem in proportion to the size of the tree, returning the earth in a dry state after the water has passed down to the roots; a few handfuls of salt thrown in the water will always be beneficial. It is very important that the quality of the water should be looked to, because cold spring water, and even in some instances rain water from an underground tank, would be of too low a temperature, and therefore very injurious. The best is rain water which has been for some time exposed to the action of the sun, either in an open cistern or pond; and if there should be a slight admixture of manurial matter draining into such pond so much the better; but care must be taken that the latter do not predominate.

The question of protection is a vexed one; but the fact that the Peach is liable to strart into growth very early and to bloom before the danger of frosts is over, would seem to point to the expediency of having some effectual means of shelter, to be applied under certain conditions of the atmosphere. When it is free from damp and drying winds prevail the blossom will bear a very low temperature without injury; but when alternations of wet and drought prevail, accompanied with sharp morning frosts, then a moveable protection should be applied. I prefer curtains of stout canvas, sufficient to keep off rain as well as afford shelter from frosts. With proper care and a little mending such curtains will last for fifteen or twenty years.

With regard to mildew, some varieties are much more liable to it than others. The Royal George, for instance, will take it sooner than any other sort; but all are more or less liable to it in certain seasons and conditions of the atmosphere. To keep it under I find the following mode effectual:—In the spring, previous to training-out the trees, I thoroughly paint the wall over with a thick composition, made up of about equal parts of clay, soot, lime, and flowers of sulphur. These should be thoroughly comminuted and mixed together in as dry a state as possible, and then water added to bring the mixture to the consistence of very thick paint. The great error in the use of such compositions is making them too thin, when the real object is to plaster up with a thick coat all the eggs or insects, so that they may be smothered, as it were. After painting over the whole of the wall, working the composition well into the crevices and nail-holes, paint over all the branches, when dry nail them to

the wall, and just before the buds commence swelling syringe the trees well with a solution of Gishurst compound, 2 ozs. to the gallon of water. Under this treatment mildew will not attack any of the forward growth, but will sometimes appear on the late autumn growth, which may be kept rather severely pinched back, and syringing with the compound frequently resorted to. One thing it is important to remember: the enemy must be attacked on its first approaches, for if allowed to entrench itself the difficulty of dislodging it is greatly increased.

Aphides and red spider may be kept under by frequent syringings with water alone, if used as a preventive; but if required as a curative it must have the addition of tobacco or Gishurst compound. In this, as in all other remedial measures, "Prevention is better than cure."

Redleaf. JOHN COX.

FUCHSIAS.

I IMAGINE I hear the readers of the FLORIST AND POMOLOGIST exclaim, "What can any one have to say fresh upon this subject?" Well, I must acknowledge that to do so is a matter of no small difficulty, for if there is one class of plants more than another of which the cultivation has been well expounded, it is surely the Fuchsia. Within the comparatively few years which I have been engaged in gardening I have seen immense strides made, not so much in the cultivation as in the production of greatly improved varieties. Those who recollect Carolina, Oxoniensis, Riccartonii, Dr. Jephson, and the few other decent varieties that were once grown, and will mentally compare them with the best of the kinds now in cultivation, will at once acknowledge this, although their ideas and my own as to what are the best may be very different. I am not, however, going to say much about what are the best varieties of the present day, simply because in this matter, as in most others, tastes differ, and what I may conceive to be the best twelve or twenty-four may be immediately supplemented by some one else with as many more of a totally different description. There can, however, be no question that there are varieties enough to suit all tastes, whether the preference be given to small blooms and many of them, or larger blooms and few in number; dark or light, double or single, reflexed or not; and if none of these will satisfy those who are fastidious, let them describe to some enterprising cultivator what they do want, and he will soon produce a variety to their liking.

I have just now a lot of very nice pyramidal Fuchsias, averaging 4 feet high, mostly in 12-sized pots. I am rather proud of these plants, and as they are now showing an abundance of bloom, I may well look forward, so far as the Fuchsia is concerned, to being somewhat gay during the ensuing autumn. It may be of interest to give a list of the sorts I have, although I am by no means prepared to affirm that they are the best, but such as they are I give them. The kinds are La Favorita, a splendid dark flower and good pot plant; Percy, dark, double, one of the best for pots; Hugh Mollon, a very large Guiding Star, with the foliage of Venus de Medici; Princess of Wales and Sensation, with greatly distended corollas; Ami Hoste, flaked, double; Lord Elcho, good dark: Schiller and Rose of Castile, two of the freest light-bloomed Fuchsias in cultivation; Venus de Medici, Guiding Star, Her Majesty, Maid of Kent, Silver Swan, Annie, rather coarse, and Fair Oriana, these are all light-blooming kinds and well known. There are also Rifleman and Imperial, dark doubles; Marchioness of Bath, white corolla; Senator and Prince Imperial, single dark, both splendid pot plants; Souvenir de Chiswick, Duchess of Lancaster, Merry Maid, and a few others.

And now as to the cultivation. I like to put in the cuttings in the autumn, and let them stand in the cutting-pots through the winter; the top shelf of a cool greenhouse is the best place for this. Starting them in a little heat in February I shift them into 60-sized pots, finding them by that time nicely rooted, and in these they may remain for a few weeks until they have become 9 or 10 inches high, when they may be stopped. I pinch back also any side shoots that have made two joints. When they have started again they may be shifted into 48's or 32's, and a neat stick placed to each. Early in May, the plants having had the necessary pinching carefully attended to, and being now from 18 to 20 inches in height, may be shifted into 12's, their blooming pots, and be plunged in ashes or leaf soil in a sheltered situation out of doors, and well exposed to the sun. I happen to have a large wooden frame, which I use for hardening off Geraniums in spring, and having a floor of ashes; I stood the Fuchsias upon it, giving them ample space, and then filled up the intervals to the rims of the pots with ashes. Here they remained until the end of July, having in the meantime been evenly staked, occasionally turned round, and repeatedly stopped and pinched until they had become neat, short-jointed, pyramidal plants just showing signs of bloom. It was now time to remove them to their blooming quarters—I ought to have said to the conservatory; but as I do not happen to have one, I placed them upon a slightly-raised stage in a broad recess on the north side of the house. I find that the plants seem to revel in this shady position and cool temperature, and for developing their blooming qualities it seems to suit them admirably. Early in September, when our local exhibition is held, I shall exhibit some of the best of them, and I shall not be afraid or ashamed to stage my plunged, exposed, out-of-door-grown plants against any others which may have had all the assistance that glass houses and tender care may have bestowed upon them.

For soil I use about one half of the best loam I can obtain, and the other half leaf mould and rotten dung, with a small proportion of sand. For the shift into the blooming pots I place only one large crock over the hole, and then a good handful of horse-droppings. This serves the double purpose of drainage and food to the roots.

Maybush. A. D.

OUR PEAR CROPS.

We scarcely remember having ever had such a scanty crop as there is here this season. With the exception of a few trees all are bearing, comparatively speaking, no crop. Is the failure general, or only partial? I hope the latter, otherwise Pears will be remarkably scarce. As far as I have seen all growers seem to be served alike in this district; none can boast of anything like a crop, and what Pears there are upon the trees seem to me as though they will be much below the average in size.

Wrotham Park. John Edlington.

ON THE CULTIVATION OF WINTER CUCUMBERS.

This is a subject that has been frequently discussed, but with the views held by different writers I have no desire to interfere, my object being to confine my statements to what has occurred during my own practice, and endeavour to show the superiority of pot culture as compared with planting in beds of soil. Were we to reason theoretically, we should naturally conclude that the latter plan offers decided advantages over the former: such is not the case, and experience proves it to be so. But however true, I have no intention to invade

the domain of theory and demand an unconditional surrender of general principles. Practice and theory stand widely apart, and must ever remain distinct. The former alone determines the existence of a specific fact; the latter offers simple counsel, hints, and suggestions, which never mislead if we are sufficiently awake to recognise its teaching.

Leaving, however, investigations of this character, I would remark that while I continued to grow my winter Cucumbers according to the system of allowing the roots to ramble about at will, my crops were constantly after the middle of November unsatisfactory. Vitality began to lose power, the fruit was small and deformed, nor did matters begin to improve till the end of February. There is little composure whilst smarting under defeats of this kind, for independent of the daily supply for salad, there is Monsieur constantly telegraphing from the kitchen. French cooks as a rule are not the most accommodating, they admit of no scarcity, and accept of no excuses. The above is not an exceptional case. I have never yet seen winter Cucumbers produced freely when treated upon the planting-out system. Too much liberty is positively injurious; nor would I confine my statement to the growth of Cucumbers, I would submit Melons at any season to the same amount of restriction. Further, I fear we are guilty of giving the roots of all our fruit trees too much extension, whether cultivated in our hothouses or in the open air. This evil is becoming yearly more apparent, and the period is fast approaching when it will be admitted as a fact.

That hot water is, and has long been acknowledged as the most convenient and reliable means of keeping the soil at a uniform temperature is a fact respecting which there can be no cavil; but the best means of distributing the heat in the manner most agreeable to the roots is still a matter of dispute. Some gardeners prefer heated chambers, and these may be found to work advantageously, yet after having given this method a trial for several years, I dismissed it as not altogether satisfactory. The plan I now pursue, is to cover the pipes from 15 to 18 inches deep with large stones, arranging them so as to form as many cavities as possible, and by this means I can command from two three-inch pipes 90° of heat if required. Brickbats are preferable, as they absorb and radiate the heat more freely.

The size of the pots is not very material; those which I use are from 15 to 16 inches in diameter, supported about 4 inches above the stones, so as to give freedom for the roots to pass through the bottom. The bed is then filled nearly to the rim of the pots with half-decayed leaf mould, into which the roots gradually find their way. The soil for potting is not always of the same character; but of whatever kind, I have it mixed, a year previously to being used, with a third part of cow or pig manure. It should be used comparatively dry, pressed firmly in the pots, raised about 4 inches above the surface, and finished off in the form of a flattened sphere, to prevent an accumulation of water, which will produce gangrene at the collar of the plant.

Plants treated in the way that I have recommended will bear profusely for a year. Those planted in the beginning of September 1865 are now with me as vigorous and healthy as at any period, and to all appearance would survive another campaign. No account has been kept as to the amount of produce, but the aggregate will number many thousands.

I do not hold up pot-culture as infallible. There are contingencies that interfere with the best-formed design for managing the roots. Atmospheric arrangements have likewise to be considered, such as stopping, ventilation, the proper amount of moisture, and the admission of a due amount of light, without which there is imperfect elaboration of the nutritive matter, and a sluggish decomposition of water.

As regards winter temperature, a great mistake is frequently made in keeping it too high at night, allowing little repose, and giving no compensation for the expenditure of the day. From 67° to 70° will, I believe, be found a suitable mean, while that of the day may range as high as 90°, more particularly if the digestive organs are strong, still to a great extent this should be governed by the state of the external atmosphere.

Of late years we have been overwhelmed with an endless variety of Cucumbers, highly recommended by their patrons as unsurpassed for winter work. There are Rifleman, Commander-in-Chief, Volunteer, Prizetaker, and others whose name is legion, many of which I have tried; but among all I find none to equal or even approach Sion House in merit, and have confined my principal crops to this variety for many years past.

Tortworth Court. A. CRAMB.

NOTES ON THE CINERARIA.

THE Cineraria is the acknowledged favourite of every one, from the humblest amateur, who plants a pair of sashes on an old boxed-bed, and calls it a greenhouse, up to the noble lord, who rears his magnificent crystal temples consecrated to Flora, and adorns them with the rare, the rich, and the most beautiful of her subjects.

In every degree of this diversity of position we have an equal diversity of quality and appearance, from the splendid plant of 3 feet through, covered with innumerable and perfect blooms, with the broad massive leaves spread over the pot, down to the miserably ragged apologies without a leaf to cover the soil, struggling for an existence, with balls matted and dry, and weak flowers moving with green fly.

It must not be supposed that the latter are invariably found in the humblest structures; the reverse is the case: the marble stand too often supports them, plunged to their necks among other plants which serve to screen their nakedness.

To make a commencement, we will suppose the old plants after blooming have been cut over near to their pots, and are standing in a shaded, sheltered state, with their growths strong and healthy. Our hypothesis correct, about the beginning of August turn out the old balls, and remove the soil gently with the fingers until the stock-shoots are reached, carefully preserving the young rootlets, and with the point of a knife detach the strongest growths; retain double the number required of the strongest and most succulent, that there may be abundance to select from when the second potting takes place. The stock properly named, prepare a mixture composed of leaf mould, sand, and loam, in equal parts, and sift it through a fine riddle. Plant singly in pots 3 inches in diameter, give a good soaking of water, then remove them to a cold frame behind the wall, plunging them to their rims in coal ashes or rotten leaves. Keep the frames close for a few days, and be especially careful to shade in sunshine. If the frame stand not sufficiently in the shade, sprinkle overhead, after hot dry days, in the evenings; this will keep up a moist atmosphere, which the plants enjoy during the night.

In the course of three weeks or a month, the plants will have filled their pots with roots, when the proper soil comes next into consideration. Let this consist of one part sand and leaf mould, one ditto cow-droppings that have lain in a heap for a year, and two parts rich fibry loam; throw the whole together, and chop well up, after which pass through a one-inch riddle, when it will be fit for use. Next crock a sufficient number of pots 6 inches in diameter, and place a few of the lumps of the compost over the crocks; and make a selection

of the most robust plants, discarding those that are weak, or have a stunted appearance, as they are apt to start into flower too soon, and can only make shabby plants. The plants intended for growing on pot off, and do not overpress the soil in the operation; give a good watering overhead through a rose, and return them to the frame; shade if the sun shines for a day or two, and raise the lights behind sufficiently to permit of a good circulation of air in the frame.

Dispense with shading as soon as the plants have recovered from flagging, and endeavour to keep the plants moist both at the root and foliage; and when they are established in their pots remove the sashes in fine days, avoiding strong sunshine. About the beginning of October change the frame to a southern aspect, and let the plants have the full enjoyment of the sun, except in extreme cases.

As soon as the early winter frost endangers the plants in the frame, make provision for their winter quarters. Any house with sufficient artificial heat to keep out frost will do, if accommodation near the glass can be had, otherwise it is useless. As this is one of the most essential points in good cultivation, a shelf from 18 inches to 2 feet from the glass will produce, with attention, splendid plants for specimens.

Attend strictly to giving larger shifts as the plants progress, using the same soil all through; syringe overhead after strong sunshine, turn regularly, and remove weeds continuously, in case of breaking the large leaves. Give air on every favourable occasion, and give a smart smoking every time green fly makes its appearance. When the flower-shoots make a start, put the plants into their last shift of pots, and peg out their lower shoots.

Some pick out the leading shoots at this stage. This, in my opinion, is wrong, as it spoils the natural elegance of the plant. The Cineraria naturally forms its head of flower into a half-globe, of a flattened pyramidal form, which, with the assistance of pegging, is much improved, and when the branches have pushed out beyond the pots, a few light stakes crossed horizontally over the surface, and tied to the rims of the pots, will keep them in position; and the higher tiers of shoots can be fixed in their places, with threads of matting attached to the branches thus trained out.

As soon as the plants have filled their last shift of pots with roots, liquid manure waterings regularly twice a-week, at the rate of forty gallons of soft water to 1 lb. guano, ought to be given them up to the time they are breaking into general flower. In conclusion, attend regularly throughout every stage of their growth to watering, syringing overhead, airing, turning their pots, training outside branches (without sticks), except those already referred to, and keeping clear of green fly, to the day they are turned out of doors.

A. Kerr (in *Scottish Gardener*).

PICEA NORDMANNIANA.

Picea Nordmanniana is second to no Silver Fir now in cultivation for symmetry and beauty. It grows here with remarkable freedom, making in some seasons yearling shoots from 2 to 3 feet and even more in length, and becoming densely clothed with branches. Its foliage is, on the upper side, of a beautiful dark green, smooth, and shining; and on the under surface of a silvery hue. It has not, however, been seen with us in its greatest beauty till last winter, when I was surprised and delighted to observe that in the case of two large tall trees growing here, the under side of the foliage on the most aged parts had become of the most beautiful shining silvery white; as the wind turned them up to the sun this feature was truly beautiful.

The cone with us is of a reddish brown colour, and from 6 to 7 inches in length. The trees, which for several years only produced male catkins, have also borne seed, which ripened here in the last week in September or first week in October. The seed requires watching, in order to collect it when ripe, for the cones burst open quickly on a sunny, drying day, and very soon shed their seeds. Like all the Piceas, the trees bring their seed to perfection the same season as that in which the cones are produced; but it is not so with many of the Pinus family, the growth and ripening of whose cones take from two to five or six years, and in many cases four years. On this subject I may have some remarks to offer on a future occasion, for the information of amateurs and those who have not had the opportunities which I have enjoyed of observing Conifers in this country.

Bicton. JAMES BARNES.

THE BALSAM.

It is nearly three hundred years since the common garden Balsam (Impatiens hortensis), was introduced to England from the East Indies, or from Cochin-China. From it have come the beautiful varieties that recently made the name of Smith so famous, and which are also so much cultivated by many growers in every part of the country. They are very largely grown, though so seldom seen at the London exhibitions. At the summer shows held in the provinces they generally put in an appearance, but are rarely produced as they ought to be—as dwarf, compact, and yet bushy plants, thickly hung with flowers, and these of a large size and very double. Too often there is a large redundancy of foliage, and that in many cases much drawn, and, consequently, the flowers are immature and unsatisfactory. Very recently, I saw at a large provincial flower show some Balsams grown in this wise—out of four collections of six plants each, there were scarcely two plants that could be termed creditable specimens of culture.

There is considerable difficulty in getting a thoroughly good strain of Balsam seed—the seed saved in England does not meet the demand, and recourse is had to the Continent to procure a supply. It is but rarely that first-class continental seed can be obtained, and even in cases where seed from the finest strain of English-grown plants has been sent to the Continent to be grown from, it invariably degenerates, probably owing to unskilful culture. Growers of this favourite annual, so worthy of cultivation, should endeavour to secure a good strain of seed, and save some from the very best flowers only when they have them in first-rate condition. Balsam seed will preserve its germinating power for several years—in fact, seed five and six years old has been found to produce better plants and more double flowers than newer seeds, while some of the best growers of the Balsam always keep their seeds two or three seasons before sowing it.

Next in importance to the necessity for a good strain of seed is that of good cultivation. From the same packet of seed have been raised plants that produced very different results—in the one case fit for the exhibition-table, in the other for the dunghill. The two results have been well described by a very successful cultivator:—"Very fine plants with stout, sturdy, tree-like stems, covered with fine, large, Camellia-like flowers, interspersed with fine, dark green, shining foliage, being the produce of one cultivator; while, on the other hand (from the same packet of seed), the plants were slender and thin, with semi-double blooms, altogether presenting a very meagre appearance. Now, it is very hard to convince some people that all this difference is purely

the result of cultivation. Instead of searching for the cause at home, they immediately blame their unfortunate seedsman." This has been well put, for it is a fact that seedsmen are often made the scapegoat for the offences of unskilful and careless gardeners, and it is unjust that a good reputation should be so slightly valued by them.

A very famous cultivator of the Balsam, though one scarcely heard of beyond the circle of his own locality, adopts the following as his method of cultivation, and his results are such as to justify the rules observed. He says, "Fifteen or sixteen weeks before I require the plants in bloom, I fill with soil to within half an inch of the tops as many small pots as I require plants, I press with my fingers two good seeds into each pot a little apart, and place them in a hotbed within a few inches of the glass; when they have come up and have stems above the tops of the pots I draw the weakest plant out and fill up to the top of the pot with fine soil around the stem of the young plant, which will soon root into the soil. As the plants advance in growth, I give them a shift into pots a little larger, keeping the ball of the plants well down, so as to cover a part of the stem; this will enable the plant to make new roots, by which it will receive great benefit. Keep the plants while growing in a humid warm atmosphere: nothing suits them better than a manure hotbed, giving them room, and tilting the frame as the plants reach the glass."

These are the simple principles by which the most important advance is made, and by the time this point is gained the plants will soon be ready to shift into their blooming-pots. This being done, great care must be taken of the lateral shoots so as to insure symmetrical growth. It is usual to tie a piece of string or matting round the pot just beneath the rim, to which the lower shoots are tied; but the tying process should be done very carefully, and the shoots brought down to their place by degrees. The tying material should be very soft, as the stems are very tender and are soon injured.

Pots about 8 or 9 inches in diameter do well for blooming the plants in, and the compost should be good loam and an old spent Mushroom-bed in about equal proportions, or a third of decayed turf, a third of well-rotted manure, and the remainder leaf mould and sand. When the pots become well filled with roots manure water should be applied twice or thrice a-week, but it should be carefully diluted. Sheep-droppings are strongly recommended for this purpose, and they are easily procurable. A gentle syringing with soft water, daily performed, is very beneficial to the plants. Plenty of room and air should be given in hot weather, and the plants should on no account be suffered to flag for want of water. This can be freely administered in dry weather, and light and sunshine are equally indispensable.

Careful tying-out should not be confined to the plants intended for exhibition. Gardeners will often bestow great pains on these, while those intended for decorating the conservatory are left slovenly and uncared for. Not long since I walked through two private gardens to look at the Balsams. In the one case the plants were the most striking thing in the conservatory. Well-grown, well-bloomed, and carefully tied-out, they were made the most of, and did great credit to the gardener. In the other group there were present good culture and good quality, but no tasteful eye or artistic hand had made the very most of the plants, and they looked worse than they really were. Why should not the conservatory be an exhibition also? Surely the credit to be obtained there is as useful at least to the gardener as the many prizes obtained elsewhere.

Balsams have been divided into two classes—the Camellia-flowered, and the Rose-flowered. The latter were supposed to have their petals more cupped

than the latter. A good strain will also contain flowers of both these divisions, so there is no certainty in keeping them distinct.

In order to preserve a successson of blooming plants, some can be retarded by delaying giving them larger pots, but they should be well supplied with water, and some manure water ought to be administered also. Mr. George Dawson once recommended, that the plants to be retarded should be kept near the glass, that a free circulation of air should be permitted, and that when any flower-buds offered, as soon as their footstalks were a quarter of an inch long, they should be rubbed off with the finger, and that this operation should be repeated even a dozen times if required. Thus, in Mr. Dawson's experience, from one sowing there could be kept up a good succession of Balsams in flower from the middle of May to the end of November.

Quo.

A FEW OBSERVATIONS CONCERNING VEGETABLES.

Having been kindly invited by "E. W." in last month's Florist and Pomologist to give my experience with some of the new vegetables that yearly swell the fat catalogues of our leading seedsmen, and as I generally procure all new sorts of Lettuces, Cauliflowers, Broccolis, Cabbages, and Peas, as soon as they come out, I gladly beg to inform "E. W." what kinds I have tried and found the best. Ivery's Nonsuch Lettuce I have grown for the last two years, and find it an excellent variety for summer use. The Holme Park Cos Lettuce I have not grown yet. For sowing now (August) for standing the winter, the Bath Cos, Hammersmith Hardy Green, and Tom Thumb Cabbage Lettuce, I consider the best.

Cauliflowers with me this summer have done very badly, the best being the true Walcheren from early spring sowings All the autumn-sown under hand-lights and in the open ground came generally with strangely-shaped heads and small, and I hear of many of my neighbours complaining in the same way. My list of varieties comprised Asiatic, London, Lenormand's, Early Paris, Erfurt, Mitchell's Hardy, and Squibb's Dwarf. Of these I consider the Asiatic and London the best of the tall-growing varieties, and Squibb's, if true, the best of the dwarfs; but there is none better than the Walcheren, if true, for summer and autumn use.

As to Broccolis, their name is legion, and a great many might be discarded from the catalogues and never missed. The early varieties I have selected and find the best for succession and good qualities are the following:—Grange's Early Cape, Snow's True Winter White, Early Penzance, Dilcock's Bride, and Osborn's Early White. This last variety is very distinct, and does not stand severe winters in the midland counties, having a deal of the Cauliflower breed in it. For April, May, and June I have found the following keep up a good succession:—Knight's Protecting, Dalmeny Late; and for the very latest, the Richmond and Carter's Champion. Cattell's Eclipse I am trying this year.

On the vexed question of early Peas some strong opinions have lately been expressed, that we have been buying old sorts for new, and at high prices. I am certain of one thing, that as to the earliness of Peas much depends upon the season, and that an old variety, called the Early Kent (or Nimble Tailor), could be got as early in May in the open air as the First Crops and Ringleaders of the present day. Having a glass-covered wall, 800 feet long, I this spring had all these new early Peas grown in pots, and found that although the first crop on Ringleader was about a week earlier than Sangster's No. 1 and Carpenter's Express, the size of the pods was so small, only two or three Peas being in them, that I shall give up growing these early Peas in pots for the

future. First Crop in the open air is likewise very short in the pods, and ripens all at once; but Sangster's No. 1, although a little later, is a better podder and bearer.

The Peas this year which I have found worth forcing are Beck's Tom Thumb and Turner's Little Gem. These varieties can be grown in pots in frames or low houses near the glass, and will produce pods worth looking at, and are of excellent flavour when forced early. Another early wrinkled Marrow, called Advancer, also forces well; it is dwarf, and makes a good succession to the others. In the open air this variety can be had ready for gathering only a week or ten days later than these small early kinds, and there is no comparison as to its flavour and productiveness.

In a large establishment where Peas are required from the middle of May till frost cuts them down, I have succeeded best with the following list:—For the earliest: Ringleader, or First Crop, and Sangster's No. 1; early Marrows: Advancer, Prince of Wales, Long-podded Tom Thumb, and Laxton's Prolific, an excellent large-podded new kind. For late and successional purposes: Veitch's Perfection, Premier, King of the Marrows; and for the very latest, Knight's Dwarf Marrow and Hairs' Mammoth I find are the best sorts. With the above varieties I believe the best and surest succession of Peas might be kept up that it is possible to select from the present over-grown lists of seedsmen. As some prefer the flavour of the old Blue Prussian varieties, Bedman's Imperial and Batt's Wonder will be found good sorts.

Welbeck. WILLIAM TILLERY.

BROWALLIA ELATA.

"A. D.'s" note on Trachelium cæruleum was a well-timed recognition of a charming old plant, "somewhat neglected," as he truly says. Any one who has this season seen it produced at the meeting of the Committees at South Kensington, from the gardens of the Royal Horticultural Society, will be ready to endorse most heartily all that "A. D," says respecting its value and attractiveness. The name of another old favourite which time has used badly heads this paper. Browallia elata is an old Peruvian annual, so old as to have reached nearly the age of a century, and yet it deserves that care and attention bestowed on many new favourites not possessing one-half its charms. I have within the last few days seen it in flower at the nursery of Mr. William Dean, Shipley, Yorkshire, and the pretty cerulean blue flowers were strikingly gay and attractive. In a cool house several plants of it were in flower that had been raised from seed early in the spring. The seed was sown in March in a mild heat, and the plants had been pushed on in a stove-house, but pinched back to make them bushy. It should have a place in a greenhouse at this season of the year, where it would be a fitting companion for the Balsam, Cockscomb, &c., now so useful for decorative purposes.

E. W.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

August 7th.—A very pretty group of cut spikes of Gladioli was shown by Messrs. J. Veitch & Sons. Among them were fine examples of Brenchleyensis but wanting that peculiar vermilion hue of colour that Messrs. Youell & Co. always impart to their flowers of that variety. Whether it is owing to some peculiarity of soil, &c., at Yarmouth, or whatever else may tend to produce it, there are always in the spikes of Brenchleyensis that Messrs. Youell occasion-

ally produce a depth and vividness of colour clearly noticeable. Other varieties from Messrs. Veitch were John Waterer, pale rosy cerise, with carmine stripes and white throat, pencilled with crimson-purple; Milton, pale pink streaked with purple and carmine, a very fine variety; Calendulaceus; Ninon de l'Enclos, very fine; Lord Byron, intense bright crimson, with white throat, flowers large, but wanting form; La Quintinie, rosy salmon and carmine, the throat pencilled with reddish purple, a good showy flower; Princess of Wales and Shakespeare, both large light flowers, but too much feathered on the spike; John Bull, white or very pale blush, with lemon throat pencilled with crimson, large and very fine; and Mowbray Morris, bright crimson, pencilled with rosy purple on the lower segments, a small flower, but very striking in colour.

Mr. W. Chater, of Saffron Walden, had some spikes of seedling Hollyhocks, to two of which—viz., speciosa, salmon buff suffused with crimson, very close, full, and fine flowers; and Frederick Chater, a kind of sulphur-buff colour, flowers close and full, first-class certificates were given. A second-class certificate was awarded to Edward Speed, a very novel variety, a kind of pale purplish grey in colour; the flowers were close and good. Other varieties were Attraction, rosy pink; Glory, pale crimson, large flowers, but somewhat loose; Nonpareil, maroon crimson, a good close flower; Alba superba, white; and Lord Palmerston, pale rose. The point of interest of the meeting was centered in the magnificent variety of Lilium auratum, called splendidum, exhibited by Messrs. Cutbush & Son, of Highgate, which is the best marked variety yet seen. The flower (for it had but one), was of large size, of good form, and instead of the usual orange-coloured band on each petal, it had one of a dullish crimson. It was produced by one of a few bulbs that remained unsold in the spring in consequence of their small size, and fortunate was it for Messrs. Cutbush that it remained unsold. The variety was awarded a first-class certificate.

From Mr. Turner, of Slough, came four seedling Pelargoniums of the Nosegay section—viz., Duchess of Sutherland, purplish rose, dashed with orange scarlet, a fine shade of colour, very free blooming. A first-class certificate was awarded to this flower at a previous meeting. The others were Lady Constance Grosvenor, having large trusses of bright, deep orange scarlet flowers, awarded a first-class certificate; International, a great improvement both in the substance and colour of the flowers on Paul's Black Dwarf, the habit being the same, the colour of the former rich crimson scarlet; and Countess of Sefton, a good shade of rosy scarlet. Messrs. E. G. Henderson & Son also sent a quantity of variegated, Nosegay, and Zonale Pelargoniums, to one of which, Christine Nosegay, a first-class certificate was awarded. A special certificate was also awarded to them for their collection of plants. Among a group of things from Messrs. Carter & Co. were capital plants of the variegated Maize, which are said to come best when sown in the open air, and two Lobelias—viz., Attraction, a variety very like Paxtoni, and Beauty of Ravensbourne, very dwarf and compact in habit, with plenty of small lilac flowers, having white centres; to this a second-class certificate was awarded. To Mr. A. Henderson, of Thornton Heath, Croydon, a first-class certificate was awarded for a strong branch of the climbing Rose Devoniensis, with a large terminal cluster of flowers.

There were also plenty of new plants, Orchids, &c., to several of which certificates were awarded.

Fruit was represented by a very fine Enville Pine Apple, weighing 7¾ lbs., from Mr. Carmichael, of Sandringham, which was sent to Marlborough House. From Mr. Keynes, of Salisbury, came some Grapes, and Grapes were sent

from other sources also. There were besides Gooseberries, Apples, Potatoes, and some very large pods of the Rat-tailed Radish from Mr. W. Melville, of Dalmeny Park.

R. D.

THE CORREA.

The Correa is an old and was formerly a favourite greenhouse plant. C. alba has a small white but rather mean flower; C. pulchella has a larger brilliant orange scarlet; C. virens a pale green, and C. speciosa a crimson flower with green tips. These have been for many years as common as any greenhouse plants in cultivation, and no particular progress was made beyond producing them, as usual in neglected greenhouses, very large and very ugly; indeed of late years Correa alba has been regarded only as a stock to work better sorts on. C. rufa, with its rusty leaves and pale green flowers, was next introduced; and last, C. cardinalis, a bright red and green, the handsomest of them all, but unfortunately apt to be rather bare of leaves.

Mr. Milner, of Clapham, was the first in this country who successfully crossed the several species of Correa, and those who remember the noble specimen of Correa Milneri in 1838 or 1839 will be able to appreciate the greatest improvement of any that has been the result of crossing in this country. Correa Milneri was one of a hundred seedlings which among them possessed all the best features of the best old sorts. C. Milneri was a crimson scarlet or a scarlet crimson of rich texture, with flowers above the average size. It was, however, so experimentalised on that it was soon lost altogether. In the meantime a lot of the other seedlings got distributed, such as C. Lindleyana, C. Cavendishii, C. longiflora, C. grandiflora, C. rosea, C. bicolor—not the bicolor that was dirty red and dirty white, but the bicolor that was conspicuous for the brilliance of its crimson, the cleanness of its green tips, and the elegance of its habit. The plant became deservedly popular, and considering there is not a single greenhouse plant so truly beautiful from November till March, the most dreary time of the year, it is to be regretted that it does not more generally work its way into modern collections. I attribute this to a fact which cannot be gainsaid. The great bulk of plant-growers order their stocks from those specimens which figure at the exhibitions, consequently winter beauties are generally neglected, and conservatories comparatively bare of bloom; nobody thinks of what they do not see, and gardeners find quite a distinct business in providing for shows. Mr. Milner continued to raise seedlings, and as he left the neighbourhood of London to begin farming, where flowers would not be appreciated, the whole of the remainder went into the hands of the late Mr. Gaines, of Battersea, who named and sent out several, but the buyers of such plants were few.

No conservatory ought to be without a dozen of the most striking varieties, for they are one mass of bloom during five or six of the barest months in the whole year; they are free growers, abundant bloomers, by no means tender enough to be hurt by a slight frost, want but little attention, are better without fire heat than with it, and well repay us for the room, attention, and labour they require. Again, having taken to sport, there is no saying to what end the improvements might be carried. Those who desire to raise seedlings should procure, in the first instance, half a dozen or a dozen of the best and most conspicuous sorts. Let them be grown in an ordinary greenhouse, close together, from November until they are completely out of flower. There will be found on some of them a pod or two of seed; take off the pods, dry them in the shade, and before they have been dry a week, sow them in pots.

The soil adapted for seedlings would be good for the largest plants, except

that there is a watchfulness observed towards small things which is rarely carried through to larger ones. The Correa being naturally a well-formed shrubby plant wants very little care as to exciting composts; one-third loam, from the top 2 inches of a pasture, laid together and rotted with all the turf in it, and two-thirds good turfy peat, such as is adapted for Heaths—that full of partly-decomposed fibre, which keeps the texture light and porous; these, well mixed together by repeatedly stirring them and rubbing them through the half-inch meshes of a wire sieve, will be the best soil that can be used. Let a quantity of this be placed in a good-sized pot, the top made very level, and as solid as it will become by striking the bottom down upon the potting table; the seed may be sown as thinly as possible and evenly over the surface, a little of the soil put in a fine wire sieve, and as much small stuff sifted over the seed as will cover it and no more. Place the pot in the greenhouse, and although it ought not to be wet, take especial care that it never becomes thoroughly dry. Seed-pans neglected a few hours at the critical moment when germination has begun, are sure to suffer; the drought would kill the seed, but in large pots the earth is a long time before it gets too dry, because of the greater body. In wetting the seed, do not fall into the common error of watering the top half-inch of soil, under the notion that a little is sufficient for little subjects. You must water so gently that you must not disturb a grain of sand, for if you do you disturb the seed also. The best way to water all light seeds lightly covered is to dip a common clothes-brush into a pail of water, hold the hairs upwards, and draw your hand along the hairs with a gentle pressure towards you. The water flies off in such small particles as will disturb nothing, and yet in such quantities as will soon wet the seed. If the seed is not allowed to dry after it is sown, in due time every seed germinates. By the time the young seedlings have made good leaves they must be pricked out, and the most effective way is in 60-sized pots, all round close to the edge of the pot and an inch apart. Fill these pots with the same sort of soil, knock the pots against the table to let the earth settle down a little, and with a piece of wood, cut flat, and a little pointed, like a knife, lift up the soil in the seedling pot, so as to release a few at a time without disturbing the roots. With the same instrument make small holes close to the side of the pot which the roots may touch, and close the soil upon them. The pots should then be put close together in the shady part of the house, and a hand-glass over them; the drainage of these small pots may be a lump of the peat, such as does not go through the sieve, or an inch thickness of moss, or a flattish piece of crock to go over the hole, and small pieces to fill up level round it. The watering of these newly-planted seedlings must be as carefully done as in the earlier stages. The plants while young will require continued shading, and it will not do until they are fairly established in their first pots, a single plant in a pot, to treat them as established plants. Although a sunny hour within its influence would bake the sides of the pot and burn up the roots, yet the warmth of the pot, the facility with which air can get down to the roots, and the moisture which the pot absorbs, and in turn supplies, are all favourable to the advancement of the young plant when kept from the full influence of the sun.

By the time the plants have made good growth and full roots they will be ready to take their places in the middle of the same sized pots which have hitherto accommodated half a dozen round the edges, and with drainage as before. In potting, carefully divide the ball into as many pieces as there are plants, and without disturbing each plant, place the root and soil together in the centre of the pot, fill up all round by poking down the compost with the fingers, but not too tight, adjust the plant so that it is no deeper in the soil than it was, water carefully without disturbing, and let them be placed under hand-glasses

(although in the greenhouse), for three or four days. They may then be released from the hand-glasses first; next, placed on the shelves, where they can be shaded an hour or two through the hottest sun; and lastly, as they get better established, put upon any of the shelves near the glass, where they cannot be overlooked as to watering, or be otherwise neglected, and they will be done with, except for the ordinary attention that belongs to all plants, until their roots reach the edge or sides of the pot, and begin to get matted and cross each other all over the surface next the pot.

The plants will show whether they have made their first growth fairly and want a rest by one thing, which is unerring in all plants: while they are growing and want no rest the top leaves of each shoot are smaller, and the centre leaves smallest, but when these end leaves have grown nearly the colour and size of the others, and there are no young leaves opening, or rather the youngest have grown nearly to their size without others coming, the plant will be better for rest—that is, it may be placed in the coolest part of the greenhouse, have no more water than is just enough to preserve it from drying, and merely be watched until there is a movement in the fresh growth; then shift them all into pots a size larger, say from small 60's, which may be called 2½ inches across, to large 60's, which are 3½ inches across, or even to 48-sized pots, which are 4½ inches. But although large shifts, as they are called, which means a jump over one or two intermediate sizes, saves trouble, they are not beneficial to the plants, and it is preferable to move them only one size at a time. Let the draining of these second-sized pots consist of crocks an inch in depth. Water them all as fast as they are changed from one pot to the other, and place them in the shade till the next day, when they may take their places on the shelves or out of doors, according to the season, as the case may be. After May they are better out of doors, on a hard bottom impervious to water and worms, because their roots cannot then strike into the soil, which causes an unnatural growth for the time, and a violent check in the end when they are returned to their winter quarters. If there is plenty of accommodation, a common garden frame and light in a northern aspect will be the best summer residence, but it is essential that the bottom be hard, and that water may not lay there nor sink into the earth, but run away altogether.

When the season's growth is over, there will be the same reason as before for giving rest by stinting the water and keeping the plants cool and light, especially if they are to be wintered in the greenhouse. They will in all probability the third season produce bloom; when, therefore, they start growth, let them be instantly repotted with the same kind of compost, in a size larger pot, and be treated as before during the growth, whether it be in the greenhouse or in the garden. They will now grow till they show bloom, or at least many of them will; and by the time they are to be moved to the greenhouse they will be in bloom, and continue so the whole winter, when all that are good for nothing—that is to say, all that do not equal those we have as to form, and with new colours, or are not better in form and equal as to colour, should be thrown out. To multiply varieties by recognising trifling differences has been the bane of floriculture. Hundreds of flowers, so like each other that common observers cannot see the difference, are nevertheless cultivated for sale, and growers find no difference but the name. It is, therefore, of the highest consequence that everything that is not a manifest improvement upon what we possess already should be thrown away. Choice novelties may be propagated.

In the Correa we have for a universal stock C. alba, a robust and healthy species, growing freely, and for the most part greatly assisting any less robust kind that may be grafted or budded on it. The grafting of the Correa is easily performed. Shave a flat side to the stock, and a similar flat side to the piece

intended to be grafted; bind these firmly together, so that the barks of both meet on one edge at least, and cover the join with grafting wax to keep out the air.

Propagation by cuttings is a very simple operation. Cut off the ends of shoots, when the plant has done growing, two joints long; let the under part be cut with a sharp knife close up to the joint. Prepare pots by filling them within half an inch of the top with the usual soil, laid very level, and half an inch of sand above. Press the bell-glass which is to be used as a cover on the sand, to mark how much space is available, and then thrust the cuttings through the sand, so as to touch the soil but not enter it. Water well to settle the sand close to the stems, and cover with the glass. Let the glass be wiped every morning, and be shaded during the hot sun. Generally speaking cuttings root freely, and the stocks of C. alba must be provided by cuttings. In rejecting seedlings, robust-growing ones may always be kept for stocks, although rejected as varieties; they are just as good as any to work others on—that is to say, if they are strong growers.

The properties which constitute perfection in the Correa are these:—In habit they must be shrubby, short-jointed—that is, with close foliage, and branching horizontally. The leaves must be dark green, smooth on the surface. The flowering must be continuous, abundant, and distributed all over the plant. The flowers must be tubular, but barrel-formed in preference to pinched in—the lower part bell-mouthed and reflexing; the outer surface of the same texture as the inside; the edge without indentation; the barrel without corners, flutes, or ribs; the mouth two diameters of the neck, the length same as the leaf; the footstalk short; the flowers pendent. Sells must be of the same colour inside and outside the flower. In variegated flowers, if there are two colours, the tube must be of one, and the neck and mouth of the other; if a third colour, it must be confined to the lips only. The greater the contrast the better, all the colours being bright, or rather dense, and the more abrupt the transition from one colour to another the better.

The Correa is capable of being vastly improved, and as a winter-bloomer is worth the attempt. We have already some very decided colours, especially in C. cardinalis.—(*Gardeners' Chronicle.*)

STRAY NOTES.

Convolvulus mauritanicus is a charming plant for a window box. It grows and flowers profusely. The blossoms close early in the evening, but yet remain open during the day. Young shoots spring up from the root to replace those whose flowers have expanded. As a basket plant it will be very useful indeed.

In the same box Thunbergia aurantiaca flourishes well, and gives plenty of blossoms. Entwined among the Convolvulus the two form a very pleasing contrast. During the recent cold weather it made but little progress; but since the hot weather set in it has grown rapidly, and flowers freely.

E. W.

OUR CONTEMPORARIES.

L'Illustration Horticole for June and July, has plates of the following plants;—

Phormium tenax foliis variegatis (Variegated New Zealand Flax).—A good

though somewhat highly-coloured representation is given of this plant, which during the spring and summer has been exhibited with very good effect in several collections of fine-foliaged plants. It is only necessary to add that its long graceful leaves are very distinctly striped with yellow.

Camellia Marianna Talenti.—A variety of Italian origin with rosy cerise flowers, veined with a deeper colour, and having a broad white stripe down the centre of each petal, these stripes being most numerous and conspicuous near the centre of the flower.

Anthurium Scherzerianum, figured in our last Volume. The colour of the brilliant scarlet spathe is well rendered.

Lobelia coronopifolia.—The plate is copied from the "Floral Magazine" of September, 1865, which is also given as the authority for the description, M. Lemaire not having seen either a living or dead specimen of the plant. He doubts, however, whether it is the true Lobelia coronopifolia of Linnæus.

Tea Rose Isabelle Sprunt.—The flowers are described as being large, of a very pale sulphur yellow, deeper in colour towards the centre, and very sweet-scented. It is said to be very free-flowering, and to have this peculiarity—that the leaves are edged with red. It was raised by Mr. Buchanan, of New York.

The FLORAL MAGAZINE for August, has representations of

Pelargoniums Lord Lyon and *Favourite.*—The former is a very large flower, having bright rosy crimson upper petals with a dark blotch, rosy pink lower petals slightly veined, and a white throat. *Favourite* has brilliant crimson maroon upper petals, with a narrow fiery crimson border, deep rosy crimson lower petals, with a dark spot towards the base of each, and a pure white throat. Both varieties were raised by Mr. Hoyle, of Reading.

Rose Miss Margaret Dombrain.—A seedling of La Reine, obtained by M. Eugène Verdier, and one of the best of the Roses of 1865. The flower is large, globular, and very full, of a bright rosy pink.

Azaleas Charmer and *Vivid*, the former magenta purple, the latter deep red, are two Belgian varieties in the hands of Mr. Bull. The flowers are large, well-formed, and very showy.

OUR MONTHLY CHRONICLE.

THE past month has not been a stirring one as regards horticultural matters. The London season is now over, and departures to mountain and moor have been the order of the day. Our flower gardens are now displaying their beauty of bloom; and fruits, where the untimely frosts of spring have spared them, are ripening fast; we feast our eyes on the one and stretch forth our hands to pluck the other. Horticulturists, like other people, must have their annual holiday, and they are now hastening from place to place, enjoying that rest which change of scene and occupation affords, and gleaning many useful hints from the practice of others.

The British Association having selected Nottingham as their place of meeting this year, a grand floral fête was held there from the 23rd to the 25th of last month, and from the very large number of subjects exhibited, and the numerous attendance of visitors, it proved a great success. Not only did exhibitors attend from the surrounding district, but some came even as far as from London Mr. Williams, of Holloway, in particular, contributed his finest ornamental-foliaged plants and exotic Ferns in large numbers, and a few of his best Orchids. The Show was especially rich in Ferns, indeed a more numerous assemblage of these elegant plants we do not recollect to have seen anywhere. There was a fair exhibition of flowering plants, and excellent cut blooms of Roses, Dahlias, and Hollyhocks; but fruit was deficient in quantity, and, as a whole, not more than of average merit, whilst of vegetables there was but a limited show. Next year the Association holds its meeting at Dundee, under the presidency of the Duke of Buccleuch, and there, too, let us hope the occasion will be improved to show what our northern gardeners can do. A grand display of fruit they ought to, and will, no doubt,

produce if suitable prizes be offered. The Crystal Palace Show, on the 5th and 6th of this month, that at Edinburgh on the same days, and the Brighton Exhibition in the following week, are events which will be looked to with some interest.

Royal Horticultural Society. — The fortnightly meetings continue to sustain their interest, and the subjects brought before the Committees increase in number as the season advances. Indeed, these meetings have quite assumed the character of small exhibitions, at which, instead of a heterogeneous mass of materials, all the subjects shown are either novel, or, if old, of real interest: such meetings are most instructive. In addition to the Society's other shows, it has been determined to hold one annually in connection with that of the Royal Agricultural Society. Next year Bury St. Edmunds is to be the place of meeting for the latter Society, and if sufficient encouragement be held out by the district, the experiment of holding an annual migratory horticultural exhibition will be inaugurated. That such an exhibition may be made most conducive to the advancement of horticulture is certain, and that it may be made financially successful there is every reason to believe. We also understand that the Council have arranged that Mr. Eyles, the Society's Superintendent at Kensington, shall give to the Fellows his advice and assistance in the laying-out and management of their grounds at a guinea a-visit, and this privilege will no doubt be regarded as a boon by many who have hitherto been unable to avail themselves of Mr. Eyles's great experience in such matters. On Monday, the 27th inst., when the gardens were thrown open free to the public, in commemoration of the Prince Consort's birthday, upwards of 100,000 persons visited the grounds. The bands of the 1st and 2nd Life Guards, and of the A, B, G, H, and T divisions of Police gave their services gratuitously, and contributed much to the enjoyment of the public. The Council have also very liberally determined to open the gardens free every Wednesday during the months of September and October.

Purification of Water.—Mr. Alfred Bird, of Worcester Street, Birmingham, has recently patented a simple, inexpensive, and apparently efficient mode of divesting water taken from rivers, ponds, tanks, or wells of all impurities. The process has been suggested by the known affinity of hydrated alumina for organic matters; and the object is accomplished by the addition of one part ter-sulphate of aluminium in solution to seven thousand parts of the water—that is to say, twenty drops of the former to every gallon of the latter. As soon as the mixture takes place, a cloudy haze is seen in the water, which haze rapidly condenses into flocculi, with spaces of clear water between them. As the flocculi become more dense, they rapidly descend to the bottom of the water, leaving it absolutely free from all organic colouring matter, as clear as crystal, and free from taint. The lime, which is in solution in the water as a carbonate, combines with the sulphuric acid of the ter-sulphate, and forms sulphate of lime. The liberated hydrate of alumina instantly attacks the organic matter, which it renders insoluble, and both rapidly descend to the bottom of the water, while the carbonic acid gas which remains in the water imparts to it a sparkling freshness. The time required for complete precipitation is from six to eight hours; so that, if the patent precipitant be added to it over-night, the water will be ready for use in the morning. Ten thousand gallons can as quickly be purified by this process as a single gallon. When the operation is performed in a large jug, decanter, or stone jar, the clear fluid thus obtained may be poured off, care being taken that the sediment is not disturbed; and from a cask, cistern, or other large vessel, it may be drawn by a tap furnished with a small piece of sponge or quantity of cotton wool to arrest any flocculi which may not have completely settled down. The patentee suggests that large bodies of water may be purified by the same means, openings being provided in reservoirs and tanks for the occasional removal of the sediment. The cost of the precipitant presents no obstacle to its use, as a quantity sufficient for thirty gallons of water costs only one penny. —(*Midland Counties Herald.*)

The Stork a Gardeners' Friend.—Gardeners have often useful auxiliaries, whose merit they do not appreciate, and we would particularise the stork as one. In a recent journey we saw one of these birds in the garden of M. Talabot, at Marseilles, where it constantly walks about like a policeman, looking after evil-doers in the borders, and giving no quarter to the insects, reptiles, moles, which it may come across. Thanks to its long and powerful beak, which the bird uses like a pickaxe, mice find him a terrible enemy, from whom they are not safe even in their subterranean retreats, for he has a fine scent, and with his pickaxe beak turns up the soil in search of them. We observed a similar thing at M. Leroy's, at Angers, where three storks act as a garden police from morning to night. They never go in-doors except in severe frosts, when they betake themselves to a sheltered place at night and during bad weather. As long as they can find anything to eat in the garden they do not require any food to be supplied to them; but when, in consequence of great drought or bad weather they cannot find enough there, they do not fail to show themselves at the kitchen. Having made a meal there they again return to the garden. It is curious to see how they run to the kitchen when fish is being prepared; however far off

they may be, they always come to claim their share. Along with the three storks is a gull, and the four always go in pairs, a male and female stork together, whilst the gull is the inseparable companion of the other stork.—(*Revue Horticole.*)

Destroying Red Spider on Orchids.—M. Denis, of the Botanic Garden at Lyons, boils a few stalks and fresh leaves of Belladonna, Henbane, Pyrethrum, and Tobacco in a close vessel for four or five minutes, allows the liquor to cool, but without taking off the cover, and next day about 9 A.M., he gently syringes the leaves on both sides, taking care not to allow too much of the liquid to fall on the young growths, or if it do he reverses the plant that the liquid may run off. The process is repeated on three or four consecutive days, and in order to destroy the young which are hatched out from the eggs deposited in crevices the application is renewed after a time. When Orchids look yellow he syringes them for several days with water in which sulphate of iron has been dissolved at the rate of 13½ grains to the pint, and they soon recover their green tint.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—During fine weather let the stove plants, intended to bloom in winter, be freely exposed; this will arrest their growth and induce them to bloom at the right time. Let all the plants be closely looked over for insects. *Orchids.*—Those kinds which have completed their season's growth should be removed to a cool, dry atmosphere, for which purpose a separate house should be appropriated; if not, spare vineries, or a cool, dry pit will suit some species, for a time at least. The progression to this stage of their culture must be gradual; to species still growing maintain a moist atmosphere—somewhat reduced, however, as the influence of light decreases; gradually withdraw the shading for the same reason.

GREENHOUSE.

Mixed Greenhouse.—This will now be gay with Neriums, scarlet Pelargoniums, Japan Lilies, Balsams, &c. Preparations must be made for receiving the regular plants towards the end of the month. Plants out of doors should now be fully exposed to the sun, to ripen the year's growth. Do not neglect specimen plants, but continue to stop and train the shoots as circumstances require. Chrysanthemums should be set thin, and well supplied with liquid manure; a few may be housed towards the end of the month for early blooming. *Camellias and Azaleas.*—Let the latter be frequently looked over in order to detect thrips, which may now make their appearance, and should be effectually eradicated before the plants are housed for the winter. Any plants which were not potted in the spring, and require shifting, may now be repotted, as the plants have made their growth; well soak the ball before potting, and be cautious, in watering them afterwards, that the water do not escape through the new soil and leave the mass of roots dry. *Cinerarias.*—For seedlings and propagated plants of the old kinds, the treatment should be about the same as last month. Repot into good rich soil such plants as are rooting freely to the sides of the small pots. Open the pits or frames night and morning for a time, to keep the plants healthy. Should mildew appear, sulphur the leaves so affected on its first appearance, and fumigate if aphides are detected. *Pelargoniums.*—These should now be housed. It is a common failing to have them out of doors, or in cold damp pits too long, thus laying the foundation for the spot. Keep the plants hardy, however, by giving them plenty of air. The plants for the May exhibitions, or early bloom, should have their final repotting towards the end of the month. Stop early struck young plants by pinching a piece out of the point, and look well to young stock generally, as it requires much care and attention at this time. Too little growth is made generally before Christmas; the plants have to do in spring what they should have done in autumn, and are growing when they should be blooming. The consequence is, there is never a good head of bloom at any one time. Fancies require similar treatment, excepting that a little more warmth may be applied during their young state.

CONSERVATORY.

If possible keep only a few extra plants in this house for the next month, and make use of the time, by exposing the house as much as possible, to get the wood of the permanent inmates ripened off.

FORCING.

The earliest vineries and Peach-houses will now be fully exposed to the influence of the weather. Late Grapes will require to be kept dry, with abundance of air; fires may, however, be necessary to effect this occasionally, and nearly constantly in the case of Muscats. *Cucumbers and Melons.*—Cucumber-beds exhausted by long bearing, and from which fruit is yet required, should have a surfacing of rich compost, and a little additional bottom heat to swell off the remaining fruit. Late Melons must likewise be attended to, keeping the Vines thin, that the leaves may not shade each other; at this season they will require every ray of light to enable them to produce well-flavoured fruit. Keep up a steady bottom heat, and apply water only when necessary, graduating it in proportion to the decreasing

amount of light. Keep Cucumbers for winter supply hardy. *Pines.*—As the principal summer crop is over, the beds should be at once prepared for the reception of the ensuing season's crop. Previously, however, to placing the plants in the pits, let the house, heating apparatus, &c., be put in good order, as this cannot be well done after the plants are in. After repeated trials with compost, we still incline to pure loam, if of good quality. As the fruiting plants are placed in their permanent quarters, pot-on all the succession plants a stage, to fill up their places.

KITCHEN GARDEN.

This will be a busy month for the kitchen gardener. The winter and spring crops will require frequent hoeings in the intervals between the rows, and water occasionally in dry weather. As more ground comes to hand dig up immediately, and plant a further supply of Broccoli and Winter Greens; all will be useful in spring. On a warm rich soil, plant the first crop of spring Cabbage. Should the weather be dry, Cauliflowers, Lettuce, and Radishes, should be well soaked, to have them crisp and tender Well water Celery, and remove the side suckers before earthing up; let the plants become strong before this is attempted. Take up Onions, and dry for storing, likewise Potatoes. Sow a plot more of Turnips, they will come in either for roots or leaves in spring. A small sowing of Cauliflower, Lettuce, Onions, Cabbage, Spinach, and Parsley, may be made for furnishing a late spring supply.

FRUIT GARDEN.

Hardy Fruits.—The summer wood of the wall and espalier trees will now be laid in. If time permit thin out likewise all the useless wood from Apple, Pear, and in fact every description of fruit tree. The advantage of this will consist in admitting more light and air to embryo fruit-buds, and furnishing them at the same time with a larger amount of nutrition. Protect wall fruit from wasps and flies.

FLOWER GARDEN.

In addition to the ordinary routine of cleaning, mowing, and dressing the beds, some of the earliest blooming annuals may now want removing, and their place should be filled up from the reserve stock, of which there should always be kept a sufficient supply in hand for these purposes. Trim in straggling growths, and remove decayed blooms, dead leaves, &c. The propagation of stock for next season's supply should now be proceeded with without delay.

FLORISTS' FLOWERS.

Auriculas.—These will only have to be kept clear of insects and dead foliage, and moderately moist to keep the young roots well at work. If premature trusses of flowers should appear, pinch the buds off when well above the foliage. *Carnations and Picotees.*—The soil for wintering these should be kept sweet and tolerably dry. Commence potting into small pots towards the end of the month, to enable the plants to become well-established to stand the winter. Let them be well hardened off as soon as they have taken root. They are generally grown too tender. It will be better to err with a little too much exposure than to afford too much shelter on every occasion that the weather may prove unfavourable. Avoid wet, and give plenty of air; these are two of the most important points in the winter culture of the Carnation and Picotee. *Dahlias.*—If the disbudding and thinning of the shoots have been attended to, as previously directed, there will be but little to do this month but to attend to the bloom. Late plants will require another thinning. In shading for exhibition avoid the error too often committed of close-shading the blooms in a young state. Four or five days before the time they are required for exhibition is a sufficient time for many kinds at the commencement of the season, to be extended to eight or ten days as the season advances. Previous to shading, they should be securely tied, to prevent their being damaged by friction against the surrounding foliage. Many kinds take a much less time in blooming than others. This should be well attended to by the grower of flowers for exhibition. Soft-centered Dahlias take the shortest time in coming to perfection. Those that have a hard green centre when young, take the longest, and should be allowed more time in blooming. *Hollyhocks.*—Cuttings should be put in largely this month; they strike readily, and make excellent plants for another season. Seed should be gathered early, that the old flowering spike may be cut off to encourage the root to throw up cuttings. Sow seed as soon as ripe, and by transplanting the young plants, as soon as large enough, into small pots for wintering, they will flower well the next summer, thereby saving a season. *Pansies.*—Plant out beds for early spring blooming, and pot up what are required for flowering in pots towards the end of the month. Seedlings, as soon as large enough, should be planted out for blooming. Late-saved seed may be sown, but not later than the first week in the month. Cuttings may be put in at this time with a certainty of striking, if healthy. *Pinks.*—Prepare beds for planting out at the end of the month for blooming. The beds should be a little raised in the centre, to throw off the wet; plant about 6 inches apart. Rotten manure and common road sand should be mixed with the soil rather plentifully. Pot up a part of the stock—duplicates of the choice kinds—for wintering under glass, or to be sheltered, like Carnations during the winter. These, if planted out in well-prepared beds about the 1st of March, bloom both early and fine. *Tulips.*—Examine the bulbs occasionally; green fly sometimes attacks the points, and is easily checked if attended to in time. The soil in the beds for blooming them should be occasionally turned.

Dipladenia Amabilis

F Waller lith. 18, Hatton Garden

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DIPLADENIA AMABILIS.

WITH AN ILLUSTRATION.

THE gorgeous stove climber, which we now figure, was raised by Mr. Henry Tuke, gardener to R. Nicholls, Esq., of Bramley, near Leeds. A very fine specimen which was exhibited by Mr. Tuke at the Bradford August Show last year attracted a good deal of attention, and during the present year Messrs. Backhouse & Son, of York, into whose hands the stock has passed, and Messrs. Veitch & Sons, of Chelsea, have exhibited it in good condition at South Kensington, where it was rewarded by a first-class certificate.

We have to thank Mr. Dean, of Bradford Nursery, Shipley, for sending us the specimen from which our drawing was made, shortly after the exhibition of last year, to which we have referred.

It is with great pleasure that we publish a figure of so admirable a decorative plant, and one, too, which evinces the skill of the hybridiser, for D. amabilis is a hybrid production, and was obtained by Mr. Tuke as the result of a cross between *D. crassinoda* and *D. splendens*. The plant partakes somewhat of the habit of D. crassinoda, but it is of stronger growth, with larger foliage. The blossoms open of a pale blush pink, and gradually change to rose, until they finally attain to a richer and deeper hue than that of *D. crassinoda*. The lobes of the corolla are more rounded in form than in that plant, and the flowers, as will be seen from our illustration, are not only of large size, but of a very showy character; they are, moreover, very freely produced.

The cultivators of stove climbers are under deep obligations to Mr. Tuke for having originated so showy and free-blooming a plant, which is without doubt a decided acquisition, even in a family of which the species almost without exception occupy a front rank amongst the choicest ornaments of our stoves. It will require treatment similar to that given to the species already in cultivation.

M.

CONCERNING VEGETABLES.

I THANK Mr. Tillery for his excellent and suggestive paper under this heading, which appeared in last month's FLORIST AND POMOLOGIST. I trust Mr. Tillery will be good enough to contribute at intervals "a few observations" on this important topic, as, generally speaking, we are so much in the dark as to the true character of many of our kitchen garden plants.

I have grown this season the Holme Park Cos Lettuce. It is a dwarf-growing and hardy-looking variety, hearting well, and not apt to run to seed. It is a dark brown Cos, having a great deal of the character of the Florence Cos. I have, like many of the London people, a strong liking for white rather than brown Cos Lettuces, therefore, to my mind the Paris White Cos, if imported seed can be obtained, is the best of all summer Cos Lettuces.

The best summer Cabbage Lettuce is the Neapolitan; it is a green Malta, but hearts sooner, and the leaves are more fringed. The Longstander Cabbage Lettuce (sent out I think by Mr. Stephen Brown, of Sudbury), is a kind of small Hampton Court, but, being a summer variety, the foliage is green, and the leaves are tipped with a kind of purple. It is a good summer Cabbage Lettuce. Dickson's Hardy Winter Cabbage Lettuce is a good stock of a white Cabbage Lettuce, and is also a good summer variety, though recommended for winter work. It seems to be distinct enough to be classed as a variety, while its good qualities are the best recommendation for its being regarded as such. It is sent out by Messrs. F. & A. Dickson & Sons, of Chester. A short time ago I was

growing a Lettuce styled the Hardy Dutch, which I consider to be a first-class hardy Cabbage Lettuce, with large close heads, all heart; it is, indeed, very hardy, and I think if the stock can be preserved it will be found to be the best of all the hardy Cabbage Lettuces. It is in the hands of Messrs. Beck, Henderson, & Child, of London, and is not yet sent out.

There is a variety which finds its way into Covent Garden Market during the early spring months, known as the Hardy White Cos. It has all the characters of the Paris White Cos, but is much larger and hardier. It is much liked by the Covent Garden growers. As I have referred to a variety known as the Hampton Court, I may say that as a hardy winter Cabbage variety it ranks next to the Hardy Hammersmith. It grows to a great size, and forms a close heart of a light green colour.

I can confirm Mr. Tillery's statement in regard to Osborn's Winter White Broccoli, that it lacks hardiness—an indispensable quality in a winter Broccoli. I have not seen it growing in the south of England, but in the midland counties it was sadly cut up in the winter of 1864-65. Excessive wet, too, appears to be injurious to it. I am glad to find that Mr. Tillery has a word of praise for Dilcock's Bride. It is an excellent sort when it can be obtained true—*i.e.*, of the stock in the hands of the raiser, Mr. Dilcock, of York. There is, unfortunately, a spurious stock in the market, and the difficulty with growers of this variety is to know where it can be obtained true.

To Mr. Tillery's list of Peas let me add The Prince, a variety sent out by Messrs. Stuart & Mein, of Kelso. It is a very robust-growing variety, with a good branching habit, grows about 3½ feet high, is a prolific bearer, and has very fine pods well filled with peas of a rich flavour. It can well be termed a "Marrow Pea for the main crop," as the pods hang well, and do not age so quickly as in the case of some sorts. It is a more prolific bearer than Veitch's Perfection. Maclean's Wonderful is another variety that can be highly recommended.

In all probability the early Pea controversy will be continued next season. An early Pea combining, it is said, all the qualities, is in the hands of a seed-grower in the neighbourhood of London, and will be sent out during the winter. I have seen a letter from a gentleman of standing in the horticultural body, residing in the north-west of England, stating that this new Pea was last season *ten days earlier* than First and Best, Ringleader, First Crop, Dillistone's, and the many others so zealously recommended in glowing testimonials.

E. W.

OUR PEAR CROPS.

I WAS rather surprised to learn from Mr. Edlington's account in last month's FLORIST AND POMOLOGIST that the Pear crop has been this year in Middlesex so complete a failure as stated; in this part of Yorkshire it is a very fair one, being nearly up to the average. Considering the very heavy crops of Pears last year, I think the yield this season very satisfactory. Jargonelles, of which great quantities are grown in this neighbourhood, have been selling as low as 2*s.* 6*d.* per stone of 16 lbs. There is a ready demand for them, so that nothing but the abundance of the crop has brought them so low in price. In seasons when the crop has been light, I have known them sell for 11*s.* and 12*s.* per stone. All other kinds of Pears are a fair crop. Some are fully equal to the average, and others rather below. Here we have full crops of the following on standard trees:—White Doyenné, Aston Town, Dunmore, Williams's Bon Chrêtien, Beurré Diel, Beurré Bosc, Louise Bonne of Jersey, and Duchesse d'Angoulême. On the walls the following are fair crops:—Jargonelle, Brown

Beurré, Beurré Diel, Beurré de Rance, Easter Beurré, Swan's Egg, Gansel's Bergamot, Marie Louise (of which there is a number of trees), Vicar of Winkfield, Beurré Clairgeau, Crasanne, Glou Morceau, Van Mons Léon Leclerc, Joséphine de Malines, Winter Nelis, Hacon's Incomparable, and St. Germain.

Pears, like Apples, are rather smaller than usual, owing to the lateness and coldness of the season; but both are remarkably clean and free from spot, a result I attribute to the heavy rains we had at the beginning of June, just after the fruit was all set, and by which the trees were thoroughly cleansed and freed from insects.

Stourton. M. SAUL.

SOME GOOD HYACINTHS.

THE good old plan of occasionally giving lists of the best varieties in the various sections of flowering plants that have obtained popularity has fallen into disuetude, to a certain extent, from some cause: probably it has been overlooked among the more weighty matters that engage the attention of the horticulturist. It is my purpose to return to it, in order to give a selection of Hyacinths for the guidance of those who will now be intending purchasers, and who will be desirous of obtaining only those varieties "worthy of cultivation." A list furnished about a year ago in the columns of the *Gardeners' Chronicle* contained several varieties of Hyacinths, &c., that can no longer be termed "leading varieties," as other sorts much superior to them can now be obtained at a reasonable cost, while they will repay in a much larger degree the time and trouble bestowed on their cultivation.

Commencing with Hyacinths, it must be admitted that there are but very few double varieties that can compare with the single flowers for beauty and effectiveness. The following are the best:—Lord Wellington, blush, extra fine; Noble par Mérite, deep rose, striped with carmine; Victoria Regina, pale rosy pink; La Tour d'Auvergne, pure white; Prince of Waterloo, clear white; Bloksberg, fine marbled blue; Laurens Koster, dark indigo blue; Othello, very dark blue; and Van Speyk, pale blue. There are two or three newer varieties of good qualities, but they are too high in price for general cultivation. I have omitted double yellows altogether, because there is not one among them worth notice.

The single varieties of Hyacinths are by far the best for general cultivation. The absurd prejudice in favour of double varieties that so long existed is gradually fading away now that the superior attractions of the single varieties are being recognised. A few of each shade of colour that are cheap and good are given in the accompanying list:—Duchess of Richmond, dark red; La Dame du Lac, pale rosy pink; Annie Lisle, fine bright crimson; Madame Hodgson, pale rose; Norma, delicate waxy pink; Princess Charlotte, delicate rosy pink; Robert Steiger, bright crimson; Sultan's Favourite, very pale rose; Alba Maxima, pure white; Emmeline, pale blush; Grand Vainqueur, pure white; Grandeur à Merveille, fine pale blush; Madame Van der Hoop, fine pure white; Mont Blanc, pure white; Tubiflora, blush; Voltaire, pale blush; Baron Van Tuyll, dark blue; Bleu Mourant, dark blue; Charles Dickens, greyish blue; Grand Lilas, delicate azure blue; Orondates, porcelain blue; Mimosa, purplish black; Prince Albert, glossy dark purple; Regulus, pale blue; Anna Carolina, primrose yellow; Heroine, canary yellow; and King of Holland, buff yellow.

If a selection be made from the foregoing list the sorts cannot fail to yield great satisfaction, as they have been grown for years past, and will hold their position for years to come.

The following hints may be of service to growers:—Choose moderate-sized in preference to very large bulbs, the latter sometimes throw two or three small spikes instead of one good one. Pot the bulbs in October, using a rich compost; soil cannot be too good for Hyacinths. Place the pots after planting in a sheltered position on pieces of slate or tiles to prevent the worms working into the pots, and cover the pots with sifted coal ashes to the depth of 4 inches for the space of two months. Remove the pots to a greenhouse, the inside of a window-ledge, or any suitable place for blooming them when ready for removal. Give plenty of water, and preserve the plants from cold draughts and frost.

The culture of the Hyacinth is a very simple process, a little intelligent attention is all that is required to ensure a good display of bloom.

G. W. R.

REMARKS ON FRUIT TREE CULTURE.—No. 13.

In pursuance of my proposition to offer a few remarks on those particular points of culture in which the treatment required by one kind of fruit differs from that of another, although in many material points there are certain principles to guide practice which are common to all, I will take the Apricot next in order, for, although I have placed it next to the Peach, it is second to none; indeed, when we look at its general usefulness, both for dessert and confectionary purposes, we must award it a high position in the domestic economy.

The culture of the Apricot is peculiarly liable to be influenced by local circumstances. For example, in one locality the trees may be planted in the natural soil without any previous preparation or additional composts, where they will flourish and produce fruit abundantly, and live to a good old age; whilst in another locality it would appear that the greatest amount of preparation and attention fails to ensure a profitable return for the outlay. Now I do not consider that the soil is altogether at fault in this matter, but that there are other causes which act more powerfully against the well-doing of the trees than even an inferior or ill-prepared soil. To quote an instance bearing on the subject, I have known a gentleman in whose garden Apricots year after year signally failed to grow kindly or to bear even moderate crops, go to the expense of making a border in exact imitation of others in a distant locality where the trees flourished and bore abundant crops of fruit. His mode of procedure was unique of its kind. He first excavated the border in his own garden to the depth of 4 feet, and having drained it he carted from the favoured locality soil and subsoil to the required depth, and laid it down in his border in precisely the same order as it was placed in its natural state. Such energy deserved success; but I regret to say this did not follow, for the trees still refused to flourish, and I am inclined to think that the failure might in great part be attributed to the peculiar locality and atmospherical conditions which were very inimical to the well-doing of the Apricot in the early stages of growth. The locality was very high and very much exposed, the frosts in spring severe, and the average temperature of the spring months considerably lower than that of more sheltered localities lower down; moreover, the winds were often very strong, and frequently accompanied with cold rains, which beat against the walls with great violence.

Now, all these things are exceedingly adverse to the successful culture of the Apricot, and therefore to be avoided altogether, or means taken to guard against injurious effects by an efficient protection. I have no doubt if such a border had been formed where other conditions were more favourable, that abundant success might have followed; but, then, so also would it be the case

if an artificially-formed border had been laid down at one-fourth the expense, provided always that certain essential conditions, such as thorough drainage and a suitable compost, had been secured. It is just possible also that the great amount of knife-pruning, rendered necessary by the injurious effects of those peculiar atmospheric influences upon the wood, may have contributed its share, as the Apricot is rather impatient of severe knife work in winter, and this is another reason why a sheltered locality should be preferred, or efficient protection secured, because by careful management in the summer training very little knife-pruning would be necessary, certainly none that need be injurious.

Some trees once fell under my charge, which were very healthy and luxuriant, but would not carry the fruit to perfection, and both soil and locality were considered to be inimical to a fruitful growth, and I found that they had been systematically pruned in the winter, and that their free growth caused this to be done somewhat freely, which, with such trees, was, as I have before shown, only calculated to perpetuate the evil of a strong woody growth, which would not carry fruit. On examining the border I found it as I considered well and properly made, and carefully drained. I therefore merely removed the surface soil, which, having been kept well cropped, had driven the roots downwards instead of encouraging them to come upwards to the influence of the sun's rays, which is an essential element in securing fruitful growth; I then filled up the border with a compost of fresh loam and decayed vegetable matter. It was necessary to thin the wood out pretty freely the following winter, but afterwards by steady and persevering removal of superfluous growth, and careful summer and autumn pinching-back, the woody growth was kept in proper subjection, and very little use of the knife was necessary; and by following the same system out in succeeding years, a fruitful growth was produced which carried abundant crops to perfection, so much so, that in some seasons I took off in thinning from one tree considerably more than a hundred dozen of fruit; of course the trees were protected in spring, and a plentiful supply of water afforded, when necessary, at stoning-time.

In another instance I obtained a like success by entirely lifting very large trees—say 20 feet by 12, and replanting after making a new border. In both these cases the same effects were produced by nearly opposite practice. In the first the roots were influenced by manipulating the growth, and in the other the growth was checked through the necessary mutilation of the roots.

Redleaf. JOHN COX.

ON THE SEEDING OF CONIFERS.—No. 1.

ARAUCARIA IMBRICATA.

Now that our harvest is over and secured (and altogether it has been a glorious, fruitful, and prosperous season with us)—now that the mornings begin to get dusky, I am about to make some remarks on the time which some Conifers take to perfect their seeds, for I never can find leisure for writing while the days are long and the sun shines.

Although the cones of Araucaria imbricata had been for several seasons remarkably fine here, it was not till within the last ten years that I was able to observe how long the seeds were in coming to perfection—that is to say, in becoming perfectly ripe. Since then, however, there has been an abundance of male catkins on the male trees. I may here make a digression to remark that the male and female trees of the Araucaria imbricata are distinct individuals. The male tree produces only male catkins, from 4 to 6 inches long when

full grown, and from 1 to 2 inches in diameter. When these catkins are ripe, on a dry day the immense quantity of sulphur-coloured pollen with which they are furnished is astonishing; and when a drying wind prevails and the sun is shining, the dust, or pollen, is wafted on the air, just as when a miller shakes a flour-bag. So beautiful are Nature's ways, that actually new catkins are to be seen and found on the male trees every day in the year. Thus, to make myself understood, there are new and old catkins, or catkins of various ages and sizes at all times to be seen on the male trees. We have here up to the present time eleven male trees, and only three that we have yet discovered to be female. The cones of the female are large and very noble, like large Pine Apples in size and shape, and if well fertilised by the pollen from the male catkins, they grow to a very large size. Those which are fertilised are very soon noticeable by their rapid increase in size. A fine cone will produce from a pint to a quart of perfect seed, as large and long as the first two joints of a man's little finger. The cones produced in April, 1866, will be ripe in October and November, 1867. The seeds on the summit of the cone are first ripe, and those at its base last. They are not very convenient for bipeds, birds, squirrels, or mice to gather; but when they are ripe all seem to be on the watch to catch them up as they fall. All the birds of the woodpecker and titmouse families, squirrels, and mice, are gourmands in respect to the plump and delicious-flavoured seeds.

Bicton. JAMES BARNES.

GEISSOMERIA LONGIFLORA.

THIS is a very useful and very handsome winter-flowering decorative plant. It is easily increased by cuttings planted in the usual way and placed in a gentle bottom heat. It is a softwooded free-growing plant; but has a tendency to grow tall, and does not branch freely when stopped back. To have good-sized specimens three or four young plants should be put into one pot.

Young healthy plants struck in the preceding summer and well established in small pots, should be selected early in spring and potted three or four in a pot. When they have made some growth stop all the shoots, and when they have broken afresh shift the plants into good-sized pots, and keep them growing on all the summer in an ordinary stove temperature. They will flower in December and January, and remain a long time in bloom. Small plants are sometimes very useful for in-door decoration, and a number should be always grown for this purpose.

Stourton. M. SAUL.

ON THE STRONG SHOOTS OF FRUIT TREES.

THE "fore shoots" of wall trees are often of more vigorous growth than those close to the wall. In winter-pruning the rank wood is cut off except that which is required to fill up blanks, and perhaps with little thought as to how the shoots grew so strong. A writer, however, in these pages, maintains, like many others, that their strength is the effect of the "great amount of sap sent down in readiness for the future development of the strong and vigorous wood." This may accord with the old theory of the descent of sap in autumn into the roots of trees, but not with the fact that the roots contain less sap in winter than in summer, nor with that of the tops being stored with torpid elaborated sap in winter. It is true, however, that the growth of the shoots depends much on the state of the roots, the increase of the fibres of which is affected more or less by the health of the trees during the previous season. Still, the

crude juice collected by the fibres does not produce growth until it has passed through the leaves, therefore the first growth of trees in spring depends more on the sap stored up in the branches than on that in the roots; and regarding the rank growth of the shoots, much depends on their position, or how they are exposed to the influence of the sun. This may be seen by the vigorous shoots of fruit trees trained in the open ground, whose shoots and leaves are more exposed to the light than those of the same age when trained to a wall. The same applies, also, to strong shoots of the previous year's growth, which become weak when shaded by older branches. For instance, one-year-old shoots of Pear trees trained between old branches soon sicken and die, instead of bearing fruit; consequently, when that plan is adopted with barren trees the young shoots should have as much room as possible in order that their leaves may be exposed to the influence of the sun.

I may have said enough to show that strong shoots of trees may be rendered weak without any interference with the roots, and I have no wish at present to enter into the various plans adopted to check the rank growth of trees in order to make these fruitful, but rather to notice how weak ones may be made strong. This can be done by leaving some of their shoots not nailed to the wall during summer, in order that the sun may have more influence on the leaves. At the end of the season such shoots may be double the size of the others close to the wall, owing to the greater abundance of sap elaborated in their leaves, which has also increased the growth of the roots or fibres. This accords with the theory of there being a nearly equal balance between the growth of the tops and roots of trees. If there be any doubts respecting the sap not being stored in the roots during winter, one has only to put a piece of root and also a branch in the fire, and perhaps double the quantity of juice will ooze out at the other end of the branch that there will from the root. This I have noticed before in these pages; but I may have said too little above concerning the objection to leaving rank shoots in trees, whether they be shortened to fill up blanks, or left at their full length. It is true that vigorous shoots are apt to produce rank wood instead of fruit; but it is also true this may be prevented by leaving more of their offshoots close to the wall during summer, exactly the reverse of what has been recommended for weak trees. Perhaps there would be fewer complaints about the roots of trees if the theory of vegetation were better understood.

Cossey Park. J. WIGHTON.

LATE-FLOWERING ROSES.

DESPITE so much wet weather, so many dull, cold, and wet days—sure signs that the summer has passed, and prophetic of the coming death of so much that has been gay and beautiful; despite these, yet have many of the late-flowering Roses compensated to some extent for the dreariness that has begun to close about us and them. Wild winds, and pelting rains, and beclouded skies have assailed the Roses with great severity, and presented to them no inviting aspect of countenance, yet have many of them put forth their flowers, and gilded the dreariness they could not avert.

I walked through Mr. W. Paul's nursery, at Waltham Cross, a few days ago. There was to be seen a great breadth of standard and dwarf Roses then in bloom, numbers of them not having thin attenuated flowers, but large, full, rich blossoms with all that desired quality sometimes looked for in vain at the end of June. I thought that a selection of some of those that may truly be termed autumnal-flowering Roses might prove acceptable to the readers of the FLORIST AND POMOLOGIST. Before giving the list, however, I may state that invariably

—probably always, the varieties that flower well in the autumn are of strong and vigorous habit, and that they looked capable of standing much in the way of inclement and boisterous weather before they would succumb to it; therefore, for cold and exposed situations should such hardy constitutions be selected. Another consideration presented itself to my mind—Do not some of these stout and vigorous-growing kinds reserve, as it were, some of their very best flowers for the autumn months? It did appear to my observation as if some severity of weather, if not indispensable to, at least helps, the production of blooms of remarkable quality in several instances. Among my own Roses are plants of Duc de Rohan, Madame Caillat, Jean Goujon, and others, standing in a very exposed situation, torn and bruised by violent west winds, yet yielding about the middle of September exquisite flowers, full, clean, and high-coloured, when the bedding stuff about and beneath them has been robbed of all its colour and attractiveness. On the other hand, a very few weakly-growing varieties in my soil have not given me a single bloom for some time past. The following constitute the list to which I have referred:—Madame Emile Boyau, soft rosy flesh, changing to blush, large and full. Elizabeth Vigneron, rosy pink, a very free bloomer; a Rose that will be better appreciated by-and-by. Prince de Joinville, a free-blooming dark variety; a good autumnal-flowering kind, well adapted for climbing. Black Prince, a very fine dark Rose, flowers large and full. Prince Eugène Beauharnais, build of Général Jacqueminot, but having more scarlet in its colour. Lady Suffield, a fine free-blooming Rose, with purplish crimson flowers. Madame Elise Vilmorin, rich rosy crimson, very fine. Triomphe des Français, maroon shaded with dark crimson; a fine dark flower. Achille Gonod, carmine red, flowers large and very full, fine shade; a good late-blooming variety. Madame André Leroy, a pleasing shade of rose; very hardy. Captain Rognat, good hardy free habit, colour rosy crimson, good full flowers. Baronne de Maynard, pure white, free-blooming; a good autumnal Rose. Madame Boutin, a good late bloomer, flowers large and full. Dr. Andry, crimson purple, large and full flowers. Baptiste Desportes, colour pale rosy purple, very smooth petals. George Prince, a full and globular flower, colour bright crimson; a strong and free hardy Rose. Senateur Favre, purple; a good full Rose, plenty of substance, and good habit. Vainqueur de Goliath, Triomphe de Caen, Madame Victor Verdier, Princess of Wales, and Glory of Waltham, the last a splendid pillar Rose, were very fine indeed. A large bank of the last-named close to the railway was a very attractive sight.

Quo.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

September 4th.—Mr. Bull's great plant of Amaryllis Josephinæ, with fifty-two flowers, was the sensation of the meeting. It was certainly an extraordinary specimen. Two smaller plants of A. Griffinii, very much like the preceding, were also shown. A first-class certificate was awarded to Messrs. Downie, Laird, & Laing for Alternanthera paronychoides, a very pretty and dwarf-growing variety, which will make a capital edging plant. The same award was made to Messrs. Osborn & Son for Statice Frostii, a garden hybrid, having a profusion of light purple and white flowers. It will be a good exhibition variety. From Mr. Kingborn came some beautiful varieties of Lobelia fulgens. Some of the colours were very bright and deep; some were delicate pale shades. I have seen beds of L. fulgens very effective during the summer months, and some of these varieties would have a very pleasing aspect. Messrs. Veitch & Sons had several interesting things, among them Coleus Gibsoni, foliage bright green, changing to a darker shade with age, veined and splashed

with a dull dark crimson; a collection of Asters, which shall have a special notice by-and-by; other new plants were also produced by this firm. Messrs. E. G. Henderson & Son had a very handsome tricolor variegated Pelargonium, named Sophia Dumaresque, to which a first-class certificate was awarded. It was regarded as an improvement on Sunset. From the same source came a very good variety named Golden Ray; but as so many new kinds are now being produced, the Committee grant certificates very sparingly indeed. From Mr. Cunningham, of Burton-on-Trent, came a variety of the Ivy-leaved Pelargonium, named L'Elegante, to which a first-class certificate was awarded. The leaves are distinctly edged with a creamy white, and the flowers are of a pale lilac colour. A collection of cut spikes of Gladioli was shown by Mr. Standish, of Ascot, and included the following, some of which were truly fine:—Paul Bedford, Rajah, Samuel Weymouth, Cymbeline, The Ensign, Carminata, Prime Minister, Rev. J. Dix, Isa Craig, and J. W. Lane, all shades of scarlet and crimson; and Peter Simple, Lemonade, and Seraph, light varieties. Some of the very best of the light flowers were much feathered on the spikes, which detracts materially from their value as exhibition varieties. Mr. Mann, of Brentwood, had a good variety of tricolor-leaved Pelargonium Melona, to which a first-class certificate was awarded, and a bright scarlet Zonale variety named Mimas, to which was awarded a second-class certificate. To Mr. George, of Stamford Hill, was awarded a first-class certificate for Tropæolum compactum King of Scarlets, in the style of Lobbianum elegans, of very free habit, and producing a profusion of bright orange scarlet flowers, shaded with crimson. A double Fuchsia, named King of the Doubles, came from Mr. Cannell, of Woolwich, having flowers of a great size. Mr. Keynes, of Salisbury, was awarded a first-class certificate for Dahlia Paradise Williams, a deep maroon crimson flower of fine form; and to the same were awarded second-class certificates for Dahlias Gazelle, a large violet-shaded bronzy crimson; Vice-President, a bright amber-coloured variety; and Harriet Tetterell, a light ground variety, heavily tipped and flushed with purplish crimson. A first-class certificate was awarded to Mr. Eckford, The Gardens, Coleshill, for Verbena Coleshill, intense scarlet, with lemon eye, pips large and very showy; and the following varieties were also shown by Mr. Eckford:—Umpire, cerise crimson, large lemon eye, pips very large, good truss; Mr. Varney, deep plum purple; Triumph, deep rosy cerise, shaded with crimson, large white eye; William Dobbs, dull crimson purple; and Wee Davie, rosy crimson with white eye, small pips.

At the meeting of the Fruit Committee were produced some Potatoes from Mr. Craddock, of Warwick:—viz., Alston Kidney, a large-sized good-looking white kind, and Melbourne Seedling, another Kidney, a good deal like the Alston, but stated not to be so productive. From Mr. Short, of Heckfield Gardens, came examples of Red Astrachan Apples and Siberian Crabs. Messrs. Veitch & Sons sent a collection of Onions, comprising Nuneham Park, Reading, White Spanish, Lisbon, Welsh, Blood Red, Silver-skinned, White Nocera, Trebons, Danver's Yellow, Strasburgh, White Globe, Brown Globe, and James's Keeping.

September 18*th*.—At this meeting Mr. Turner produced a basketful of his beautiful new Nosegay Pelargonium Lady Constance Grosvenor, having numerous fine trusses of very bright orange-scarlet flowers. From the gardens of the Society came plants of Lantanas, Zonale Pelargoniums, Petunias, and some Orchids, among them a very handsome specimen of Odontoglossum grande. A first-class certificate was awarded to Mr. W. Cruikshanks, The Gardens, Langleybury, Watford, for a very pretty striped Verbena, named Lady of Langleybury. The flowers were lilac and white, the colours being very well defined.

It was said to be a seedling from Purple King. Mr. Turner had some seedling Dahlias, to the following of which second-class certificates were awarded:—Lord Lyon, crimson, heavily edged with purple, a very telling show flower; Valentine, pale lilac, tipped with rosy purple; and Flambeau, one of the most distinct and striking flowers ever seen, ground colour pale orange, heavily tipped with fiery crimson, a good show flower; another seedling was Starlight, yellow ground, slightly tipped with crimson maroon. Of older kinds, Mr. Turner had excellent blooms of Artemus Ward, Fair Imogene, very delicate; Leah, Charlotte Dorling, very fine; Arrah-na-Pogue, Master of Arts, Le Domino Noir, Freemason, Lord Derby, Epaulette, Purity, and Peeress. From Mr. Rawlings, of Bethnal Green, came Aurora, a veined rosy lilac flower, to which a second-class certificate was awarded, and John Sladden, a dark crimson flower of medium size. Mr. Pope, of Chelsea, had Mrs. Pope, delicate ground colour, edged with rosy purple, a little open at the centre, but promising to be much better, and Mirella, light yellow. Mr. Collier, of Bethnal Green, had Salmon King, pale salmon on a yellowish ground. Mr. Bragg, of Slough, had Warner, large, dark scarlet; Commodore, salmon scarlet, veined; and Mrs. Gerald Wellesley, light ground, heavily edged with rosy purple, awarded a second-class certificate: also Garibaldi, a large and coarse pale orange flower, veined with orange scarlet. While noticing the flowers shown by Mr. Pope, I omitted to notice Gem, a Fancy variety, to which a first-class certificate was awarded: it is a crimson ground flower, edged with white, small, but very pretty. Second-class certificates were awarded to Mr. Burgess, of Chelsea, for Mrs. Burgess, a sort of violet-shaded crimson, a flower difficult to describe, and to Mr. G. Wheeler, of Warminster, for Vanguard, maroon, tinged in the centre with violet. Mr. Eckford, of Coleshill Gardens, had some seedling Verbenas and Dahlias, but there was nothing worthy of notice among them. Mr. Mann, of Brentwood, had some tricolor-leaved Pelargoniums of very good qualities; and from Mr. Anderson, of Meadow Bank, Glasgow, came cut flowers of various Orchids.

Some bunches of Grapes from the Society's gardens were produced at the meeting of the Fruit Committee—viz., Frankenthal, Black, Dutch, and Mill Hill Hamburghs, and Buckland Sweetwater. Messrs. W. Cutbush & Son exhibited specimens of Nuneham Park and White Spanish Onions, grown at Nuneham Park, the latter being very much smaller than the new variety; and from Messrs. J. Wrench & Sons, London Bridge, came examples of the following sorts of Onions—Rocca, a pale form of the Flat Tripoli from Naples, Santa Anna, and St. Jorge, two varieties from Madeira, similar in character to the globular form of the Large Madeira, and red and deep red forms of the Italian Tripoli.

R. D.

HOLME PARK LETTUCE.

Your correspondent "E. W." (page 173), asks for information regarding this Lettuce. It has been grown here for several years, and is much esteemed as a summer variety. The Holme Park and Paris White Cos are the only two Cos Lettuces that I grow for summer supply. They are both excellent in every respect; being large, crisp, sweet, and not requiring to be tied up; but of the two the Holme Park stands the longer in dry weather before running to seed. This property, I need scarcely say, renders it a very valuable sort for such a season of drought as we have experienced here this summer. On the 7th of June a quantity of the two varieties named was planted on ridges between Celery trenches; and the Holme Park is now (August 9th), in excellent order for use, having large solid white hearts, while a great many plants

of the Paris White Cos have run to seed—not prematurely, but have not remained in a useful condition so long as the Holme Park. For light dry soils I consider the Holme Park Lettuce a great acquisition.

Archerfield. D. THOMSON.

BEDDING PELARGONIUMS.

THE summer that is now rapidly waning, if it has not already departed, has, owing to so much wet weather recently, severely tested the capabilities of the new varieties in standing the effects of such ungenial conditions. Of Mr. Paul's varieties of the Nosegay section, the following have withstood the weather in a very successful manner:—Rebecca, very free-blooming, large, handsome trusses; Donald Beaton; Lord Chancellor, salmon pink, with light centre; Cardinal, dark orange scarlet; Indian Yellow; Nimrod, fine orange scarlet; Waltham Nosegay, upper segments scarlet, the lower magenta, very free-blooming and effective; Orange Nosegay; Sir J. Paxton, the nearest approach to a true orange colour yet sent out, a very striking variety; Prince of Lichtenstein; Tiara, scarlet crimson suffused with purple, very distinct and fine, a splendid bedding kind; St. George, a glorious shade of colour, somewhat difficult to describe; and Phœnix, fiery scarlet, a very telling shade of colour. The beds of the kinds just mentioned presented a marked contrast to those of some of the older kinds of bedding Pelargoniums, as, in the case of the latter, not only had the colour of the trusses been washed away, but their power to produce other trusses appeared exhausted. The above-mentioned varieties are already sent out.

Of new kinds not yet sent out, but which Mr. Paul will distribute next season, Dr. Hogg promises to be a remarkably good flower. Although it is thought by some to be too much like Amy Hogg, it is distinctly deeper in colour when the two are compared. The colour is a compound of red and blue, and may be termed a bluish red. It has more blue in the colour than Amy Hogg, but less red. It is a very free-blooming kind. Another, Enchantress, has a very desirable close habit, colour rich deep magenta, the upper petals bright deep scarlet, very free-blooming, and extra fine. Village Maid is a deep rosy pink, with a fine white centre, a beautiful shade of colour, the white being separated in a very distinct manner from the pink; it is of good close habit and a free-bloomer. Blue Bell is a sort of bluish deep rose, habit dwarf and very free.

QUO.

ON POTATOES.

THE visitor to the Royal Horticultural Society's Saturday Show of the 22nd of September would doubtless observe a collection of upwards of sixty varieties of Potatoes from the neighbourhood of Southampton, and the bulk of them most excellent samples. Now the first question which he would naturally ask would be, "What is the use of so many varieties?"—and it would be very difficult to give a better answer than this: That growing such collections offers a good opportunity for making a selection of the most useful and desirable kinds. The Potato, however, has this peculiarity, that according to the character of the soil and situation the variety which proves to be the best in one place is possibly the worst in another; and if the sixty sorts shown at Kensington could be distributed to twenty different districts, and reports were made as to their qualities, we should, most probably, find that each would be pronounced the best for some particular locality. In this way it may be shown that there

is sound reason in growing or trying a large number of varieties; moreover, the Potato is not so perfect but that there is even yet ample room for improvement. We want varieties still earlier if possible, and heavier croppers; flavour will bear improving, the shape even of the best is far from handsome, but as far as size is concerned they are generally speaking quite large enough to be good.

In looking over the collection above referred to, the eye is struck with the size of some of the sorts shown, such as Scotch Regent, Farmer's Glory, Irish White, and others; but these, distasteful as they may appear to the eye of a connoisseur, are, nevertheless, great favourites among the poorer classes, because of their great productiveness, which is to them an important consideration. All varieties, however, are not like those, and if we would look further for others more to our taste we shall find in the Ash-leaf Kidney, Early Handsworth, Early Emperor, Scotch Blue, Fenn's Onwards, Daintree's Kidney, Birmingham Prizetaker, and Dawe's Matchless, varieties that for shape and quality might charm an epicure. There was one pleasing feature about this collection of Potatoes—not only was every sort distinctly named, but the special qualities of each as developed in the locality in which it was grown, both as to produce, rotation, and also as to cooking were given. It would occupy too large a portion of this article to give a *résumé* of this, but should they remain for some time on exhibition it would be well if those who take an interest in Potatoes would pay them a visit and draw therefrom their own conclusions.

It would afford an exceedingly interesting study if samples of every known variety in cultivation could be obtained by some central body, and grown in a well-selected portion of land, and then reported upon publicly by some properly qualified judges. There can be no doubt but that their decision would be of great service to growers in all parts of the country, although, probably, no one would be found to accept it as final; but there can be no doubt that such a public report would have as much interest for many as the reports already issued by the Royal Horticultural Society upon the bedding Pelargoniums at Chiswick.

ANNO.

RHODODENDRONS.

THIS year's bloom of Rhododendrons suggests a few remarks which may be of interest to some of our readers. It is now rather a long lookback to the flowering season of this favourite shrub; but as what we have got to say respects its planting and protection, our hints cannot be deemed out of date. We may premise that the display of blossoms, particularly in later situations, was extremely fine. In many places, however, a considerable portion of the flower-buds of the early varieties was destroyed, or materially injured, by the lingering frosts of April and May. It unfortunately happens, that a few degrees of frost prove injurious to the flowers of Rhododendrons, not only when they are fully developed, but almost as soon as the flower-buds begin to expand.

Why should not the early varieties be protected from frost? A florist does not grudge the expense of a frame for his Auriculas, or a canvas awning for his Tulips. In most catalogues, it is true, certain early Rhododendrons are set down as specially adapted for conservatories—an excellent hint for those who possess such structures, and have room in them for such plants; but with the exception, perhaps, of R. arboreum, we seldom see Rhododendrons planted out in the soil which forms the floor of a conservatory. Ordinary hybrids are grown in pots or tubs; and they are not often well grown, for as soon as they have flowered, they are hurried away to the back of a wall, or some shady

place, where a minimum of watering is required, and where accordingly they do not form fine foliage or strong flower-buds. Early Rhododendrons, if cultivated at all, must generally be grown in the open air. Mr. John Waterer, indeed, who is a great authority on this subject, is of opinion that they should not be so cultivated, and he strongly "advises gentlemen on no account to introduce into their clumps tender or early blooming kinds." Of course, the late bloomers are to be preferred for the general collection, and it is a happy thing that we have so many brilliant varieties of that character. But we should hesitate to lop off a whole month from the beginning of the Rhododendron season, and that at the very time that they are most wanted. We should be sorry to miss the bright scarlet or crimson blossoms of Nobleanum, or of other vernal sorts, from our spring bouquets. It is true that we sometimes see the brilliant trusses of these varieties encrusted with snow, and still more frequently we find their half-opened buds blighted by the black frosts of March and April. Well, let it be so, if it must be so; but they not unfrequently escape, like the charming R. dauricum atrovirens, which sometimes blooms as early as Christmas, and takes any opportunity of fresh weather to put in its appearance, and which, though often destroyed, is about the last shrub we should spare from our gardens. Early Rhododendrons, however, need not be destroyed by frosts. They may be effectually protected by light airy tents of tiffany or canvas. Suppose a well-selected group of these sorts to be planted in a sunny, sheltered corner of the flower garden—in a figure, let us say, of an elongated hexagonal or octagonal shape; posts, some 6 feet high, might be erected at the angles, with a few taller ones in the centre; and on these a roof and side curtains might be suspended, the latter to be drawn aside in fair weather and sunshine. A clever gardener would have no difficulty in realising this suggestion. The posts might be covered by creeping plants in summer, and with a little ingenuity these out-of-doors extemporised conservatories, might easily be made to harmonise with the permanent glazed structures set apart for the culture of plants.

This suggestion implies the grouping of the various sorts of Rhododendrons according to their periods of flowering. It would be a waste of space to put under canvas any that do not require protection. The principle of grouping we are disposed to advocate for another reason, which is well understood in the autumnal flower garden. The only means of securing a compact array of blossoms is to plant together the varieties which bloom about the same time. The effect of a mass is greatly marred by the presence of plants, some of which have done flowering, while others have not expanded their flower-buds. It would be easy, by noting the dates of the flowering of the most desirable sorts—as is partially done in Mr. Standish's excellent catalogue—to throw them into three, four, or five groups, according to the convenience of the place, or the magnitude of the collection. The following attempt at grouping will illustrate our meaning; only we beg that it may not be taken as exhaustive, many fine sorts being omitted, nor as professedly accurate, for we write chiefly from memory, aided by the above-mentioned catalogue, which does not include all the sorts named. In passing, we may express a wish that the Rhododendron nurserymen would follow Mr. Standish's example in giving the dates of flowering, and that they would imitate the catholicity of the Rose-growers, who enumerate all good varieties whether raised or introduced by themselves or not.

Early Group.—Altaclerense, Russellianum, Nobleanum several varieties, Gloire de Gand, Cinnamomum Cunninghamii, Sun of Austerlitz, Limbatum, Sir Walter Scott, Broughtoni, Prince Camille de Rohan, &c.

Medium Group.—Alarm, Album elegans, Atrosanguineum, Barclayanum, Blandyanum, Brayanum, Bylsianum, Coriaceum, Countess of Wilton, Currie-

anum, Delicatissimum (particularly Veitch's), Everestianum, Fastuosum, Gem, Genseric, Iago, Lady Eleanor Cathcart, Lady Godiva, Ingramii, Mooreanum, Mrs. Loudon, Nelsoni, Nero, Paxtoni, Perspicuum, Schiller, Victoria, Zuleika, &c.

Late Group.—Butlerianum, Candidissimum, Celebrandum, Chianoides, Colonel, Comtesse de Morella, Concessum, La Vivandière, Maculatum, Nigrum superbum, Marguérite, Minnie, Macranthum, Mr. John Waterer, Mrs. John Waterer, Mrs. Standish, Standish's Perfection, Star of England, Leopardi, &c.

The above may be recommended as a selection for a beginner. It contains few or none of the fine new high-priced varieties. Of course, one fairly inspired with the love of Rhododendrons will not content himself with these; and he will speedily discover that the second and third groups may be greatly increased. The white or light-coloured varieties in the late group are so exquisitely fine, that it is difficult to speak of them with moderation. They will match the finest Camellias any day. We may add, that in the second week of last July, we saw some fine trusses of Maculatum nigrum superbum, in a cool shaded situation, and that circumstance, supposing that Nobleanum flowered about the 1st of April, as it no doubt did in many parts of the country, marks off a period of three months and a half for the Rhododendron season of 1866.

Our observations this year have convinced us of the great superiority of soil largely composed of peat earth for the growth of Rhododendrons. It is usual for nurserymen to affirm that this shrub will grow well enough in any light soil of a loose or sandy texture. Most of their nurseries are of this description; and it is natural for them to maintain that what is sufficient for propagation is good for growth. It is true that Rhododendrons will grow, in a way, in any light soil containing abundance of vegetable matter as one of its elements. There is, however, all the difference in the world between plants that barely live after a stunted precarious fashion, and plants that grow like Willows, and are covered annually with immense showers of blossom. Amateurs who can procure peat earth are strongly recommended to avail themselves of it. If they reside near a railway, they will probably have little difficulty in obtaining—say five or six truckloads of it, which may be equal to twenty or twenty-five cartloads. Let them chop it small, or break it well with a coarse rake, but not screen it. Let them add an equal quantity of well-rotted leaf mould, free from sticks, with a sufficiency of sharp sand. That will give from sixty to seventy cartloads of compost to begin with. If the original soil of the garden is clayey or chalky it should be excavated to the depth of 12, 15, or 18 inches, as the grower can afford it, and a layer of the compost put in its place. It is often injurious to mix up any of the old soil. After the Rhododendrons have been planted they will be benefited by a strong mulching from a decayed hotbed; and the process may be repeated with good effects for several years.—(*Gardeners' Chronicle.*)

ON CAULIFLOWERS.

I AM quite of the same opinion as Mr. Tillery, that there is no better Cauliflower, for summer and autumn use, than the Walcheren, if true. I am also of opinion that it is very difficult to obtain true from the seedsmen. The late Mr. Foster, of Benningborough (the raiser of Lady Downe's and Foster's White Seedling Grapes), had the best strain of the Walcheren that I have seen. I believe he got it many years ago from Mr. Legge. He always took the greatest pains to keep it true. My neighbour, Mr. Cooper, Lady Cooke's

gardener, at Green Hammerton, obtained it from Mr. Foster, and I got it from him some years ago. I have taken great care to keep it true, and should much regret losing it. In fine seasons the seed ripens well with us; but in cold, bad, late seasons it does not. It is very easy to tell it from all other Cauliflowers in its young state. It comes, as we say in Yorkshire, as "blue as a whetstone." In growth it is more dwarf and compact than any of the other Cauliflowers, so much so, that it is sometimes mistaken by the inexperienced for Cabbage.

I have now growing on a long border four sorts of Cauliflowers, which I have been cutting for the last few weeks. They are the London, Asiatic, Erfurt, and Walcheren. The last is in every respect very much superior to the others. The heads are all compact, firm, and nicely shaped, and as white as snowballs. Some of the others "buttoned," or the heads have been badly shaped and quite yellow before they were large enough for use.

By planting out a batch of Walcheren plants once a-fortnight from the beginning of March to the end of July, I have generally an abundance of fine Cauliflowers from about the second week in June to the beginning of February. When the frosts are very severe in the autumn, they will kill the plants that furnish the early winter supply; but it is not often that the frosts are so severe as to kill them all, especially if a good breadth (as there always ought to be), has been planted in July. By taking a little pains in tying up the leaves in frosty weather until the heads are formed, and then removing them to a frame or pit, or hanging them up in an open airy shed, they will keep good for several weeks.

For the early supply in June I make two sowings in the previous August, one about the 10th of the month and the other about the 25th. If the season be a fine one, the plants from the late sowing will in general do best; but if the season be unfavourable the plants from the early sowings will be preferable. As I save my own seed, and generally have plenty of it, I sow several beds, so that I have a great choice of plants and some to spare. I plant a few out under hand-glasses towards the end of October; but of late years I have not planted a great many in this way, as, to do them justice, they require much attention during the winter and spring months in giving air at all times when the weather is favourable, and in covering and protecting them when it is frosty. Instead of planting a quantity under glasses for the early supply, towards the end of October I have a great number potted into 60's or thumb pots, and place them in a frame or pit near to the glass. As long as the weather is mild the lights are left off; but in frosty weather they are always put on, and if very severe a mat is thrown over them. Any common garden soil will do to pot the plants in at first. Towards the end of November they will be found to have made nice roots; they should then be shifted into 48-sized pots, mixing this time a little very rotten manure among the soil. When all are potted I return them to the frame or pit if the weather be still mild; but if very frosty I have them put into a cold vinery. If the soil be in a nice state when they are potted, and no fire heat is required to keep out the frost, they will not require much water during the short dark days of winter. I give them air at all favourable opportunities. Towards the end of January I again shift the whole of them, putting the largest plants into 24, and the smallest into 32-sized pots, and mixing a third of rotten manure among the soil at this potting. I put them back into the cold vinery, where they remain until the middle or latter part of February; if the weather be then mild I have them put into a cold pit or frame to harden off before they are planted out. Unless the weather be very mild I give very little air for a few days after they are placed in the pit. After they have been a week or ten days in the pit I give

more air, and if the weather be favourable I increase it liberally, so that about the first or second week in March the plants are able to bear full exposure to the weather if not very frosty. I then have the whole of them planted on a warm sheltered border, and protect the plants with some Spruce Fir or Laurel branches for a few days; but as soon as the weather is favourable these are entirely removed. If the weather be dry the plants are well watered, and having good roots they soon commence growing rapidly. I find this plan much more satisfactory than planting under glass.

I also have a quantity of plants pricked out into frames in October for transplanting into the open quarters in spring. These plants come in for use in July after the early ones are done. I also protect during the winter the small plants left in the seed-beds. These make good plants for putting out in April and the early part of May; if true Walcheren they very rarely "button," and they are better plants than any raised in heat for early planting. Small sowings made in March, April, and May will furnish plants for the different transplantings until July. By always sowing plenty of seed and having an abundance of plants, and by frequently planting out on every bit of ground I can get a plant into, I generally have plenty of good Cauliflowers from June to February.

Stourton. M. Saul.

THE FRUIT-ROOM.

Amongst the various appendages to a garden an efficient fruit-room is certainly not the least important, yet such a room we seldom see. Generally some back shed is fitted up with shelves in a very rough manner, and on these the winter Apples and Pears are laid more or less thickly, as the crop may have been. In too many instances they are obliged to be laid too thickly for their keeping well; as they are likely to be all wanted, there is no alternative but to place them so, if the space be too limited for their being kept more thinly. Although we all know that good-keeping fruit will remain sound a considerable time, even when subjected to this treatment, there is no doubt but it would keep much longer if allowed more room from the first, and those instances in which fruits have been kept for long periods will be found to be where plenty of space has been accorded; some other conditions seem necessary for the well-keeping of fruit, and it will be advisable to point out a few of these individually.

Whatever may be the reputation of a certain variety of fruit for keeping-purposes, there is no question but its merits that way are influenced by the situation in which it is grown, as well as the period at which it is gathered, and the condition of the atmosphere at the time. By way of exemplifying these conditions it will be as well to take a very common case to point them out, and though there may be some difference of opinion on the habits and qualification of the variety given as an example, there is certainly none that has a wider reputation. I, therefore, by way of pointing out the conditions necessary to enable a fruit to keep for as long a period as possible in a sound condition, will take the Ribston Pippin Apple as an example, not on account of its long-keeping capabilities—on the contrary, it is only an indifferent one in that respect; but by it we may learn the laws that govern other fruits as well.

No one who has visited a fruit-room in September, when there is a quantity of fruit all ripening into that mellow condition which betokens perfection, but must have been struck by the odour which is emitted from them. This odour, it is needless to say, must be as hurtful to the well-keeping of fruits as anything can be—say, for instance, a quantity of Williams's Bon Chrêtien Pear all ripen-

ing at once into the condition fit for table, and in a day or two all will be in a stage beyond this, and become a mass of juice which it is difficult to handle without bursting them. Now, I always look on a mass of this kind as the most dangerous to a fruit-room; and as all early fruits ripen in warmer weather than other kinds do, they ought to be furnished with a degree of ventilation almost amounting to complete exposure, in order that the odour emitted by ripening fruit, which very quickly takes a decaying turn, may not contaminate the rest. Fruit at that time ought also to be kept thin. But to return to the Ribston Pippins. It often happens that these have to be gathered when the fruit-room is more or less occupied by fruits in the condition spoken of; and if the weather be warm at the time, the fruit is impelled onward to a condition fit for table much earlier than they otherwise would be if kept cooler; and what is, perhaps, as bad, the infectious character of the atmosphere they are in hastens on decay some time before ripeness or mellowness has done its part: hence fruits that ought to be in perfection in January are ready by the end of November, not Ribston Pippin Apples only, but all other kinds of fruits as well. This is one of the reasons why fruits in certain seasons keep longer and better than they do in others—the simple fact that they are not ready to gather until cold weather insures their keeping, as more fruit generally perishes in November than in December and January, and no amount of mere cleanliness and care in removing diseased fruit can compensate for the crowded condition of the fruit-room in the early autumn months, when the weather at the same time is of a kind that favours "forcing," which it certainly does when it is warm at the periods spoken of.

Now, as the Ribston Pippin cannot be preserved under circumstances as described, let us suppose an opposite case—a backward unkindly season like that of 1860, when there was no lack of fruits generally; the fine autumn of the year before securing sufficient bloom, but the multitude of fruits only resulted in each being very small, and the unfavourable season did not mature them with that degree of perfection so requisite in good fruit: hence we had a quantity of half-perfected fruits, presenting little but a thick tough skin, and a core quite as large as usual. Some of these fruits possibly might keep longer than was ever known before; as they contained so little saccharine matter, there was scarcely anything within them to engender decay: hence a sort of withering or shrivelling-up instead of the usual spot and rot which consume the better class of fruits.

From the above it will be seen that warmth favours decay, and that cold encourages preservation by retarding the natural ripening of the fruit, and when it has approached that condition it tends to keep it from advancing further. But this unnatural state of things has its disadvantages. Fruit so treated is never good. Pears may be kept in an ice-house to a period much beyond that of their usual keeping time; but the flavour is gone. The same may be said of summer fruits, as Strawberries, Peaches, and the like, which have been so tried frequently.

Whenever a quantity of fruit is piled up in a heap it begins what in common language is called "to sweat." This sweating brings out an oily substance to the outside. Sweating will also occur without the fruit being so closely piled up as spoken of, but it is more slow; and if it be laid thinly on a shelf it is in its most legitimate way. This sweating coats the skin with a sort of varnish, which resists the action of the atmosphere, and certainly promotes the keeping qualities of the fruit. This varnish ought not to be removed by any means, handling being one of the certain ways to do so. Let the fruit, therefore, be placed at first singly on the shelves, and little else will be wanted but looking over them and picking out decayed ones; and the

place being kept cool and well ventilated, there is a tolerable certainty of their keeping well, other things also being favourable.

As every one is agreed that perfect cleanliness and sweetness are indispensable requisites in a fruit-room, the situation ought to be so chosen as to insure these as far as external circumstances will do so, but a full southern exposure is not good. The best fruit-room I ever remember to have seen was at Knowsley, the princely seat of the Earl of Derby, the internal fittings being so good; broad shelves surrounded the building, and in the centre there was a tier of shelves with drawers in the bottom compartment, the whole affording ample space to get round, and the shelves were not too crowded. The means for ventilation were ample. Some other useful fruit-rooms that I have seen are lean-to's against the north wall of a garden, the great defect in these being the want of ventilation, which, in part at least, ought to be at top, and is rarely thought of in a lean-to shed. The sides being low, the exhalations from the fruit cannot well be all carried off; it is better, therefore, to leave an opening at top to allow them to escape, otherwise the fact of being behind a wall is an advantage rather than otherwise, and more so if it be isolated, and not form part of a series of buildings, as by that means end ventilation could be more easily accomplished. I have also seen a very useful fruit-room half underground; but this is only advisable on a dry, gravelly, or sandy soil. I have also seen one under the shade of a tree, not in a dense wood, which is bad, and it answered very well. The main thing to stipulate for is plenty of space and ventilation, and to use the latter on all occasions, except, perhaps, in damp, warm weather, and the probability is that fruit will keep as long as it is required to do.

R.

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for August and September contains representations of the following plants:—

Kleinia fulgens.—A small succulent plant sent from Port Natal by Mr. Plant to W. Wilson Saunders, Esq. It grows about 2 or 3 feet high in this country, and produces vermilion orange heads on peduncles from 4 to 8 inches long.

Fremontia californica.—A Malvaceous shrub, discovered by Col. Fremont in 1846, whilst on an expedition to the Rocky Mountains, and of which some particulars were given at page 155. The first plant in Europe was in possession of the Royal Horticultural Society, but this was disposed of to Messrs. E. G. Henderson, and subsequently died; but the species was re-imported by Messrs. Veitch, and flowered with them in June. "It is," says Dr. Hooker, "undoubtedly the choicest early-flowering shrub introduced of late years, and more than rivals the Forsythias in many respects." It is a woody shrub, attaining a height of 10 feet in its native country, and resembling a Fig tree. The flowers are produced in abundance, are 2½ inches in diameter, and of a bright golden yellow colour.

Fernandesia robusta.—An Orchid originally discovered in Guatemala by G. U. Skinner, Esq., and reintroduced by Mr. Salvin. The flowers are borne on drooping peduncles, supported by upright stems a foot in height, and are bright yellow, barred and spotted on the lip with red. It is by no means showy.

Sempervivum Paivæ.—A species of Houseleek discovered in Gomera, one of the Canary Islands, by the Rev. R. T. Lowe. It forms a low, straggling shrub, with a short erect stem, and long, weak, slender, crooked branches,

from 1 to 2 feet in length. The leaves are from 1 to 2½ inches long, and from half an inch to 1 inch broad, and very glaucous. The flowers are large, green, white towards the base of the petals. The plant is only of interest as a species hitherto undescribed.

Sanchezia nobilis.—A beautiful Acanthaceous plant, discovered by Mr. Pearce, Messrs. Veitch's collector, in Ecuador. It is a stout, erect, herbaceous plant, with oblong obovate leaves, from 3 to 9 inches long, and dense panicles of yellow flowers, with bright red bracts 1½ inch in length, the corolla cylindrical, 2 inches in length, by one-third of an inch in diameter.

Saccolabium ampullaceum.—Figured in Lindley's "Sertum Orchidaceum," in 1838, as well as Paxton's "Magazine of Botany." It is a native of Sylhet, where the plant, which does not attain more than 6 inches in height, freely produces its deep rose-coloured racemes in spring.

Rhododendron Fortunei.—A beautiful species discovered by Mr. Fortune in the province of Chekiang in China, at an altitude of 3000 feet. Seeds of it were sent home by him, and plants of it were raised by Mr. Glendinning at the Chiswick Nursery, where they proved perfectly hardy, and from these the species was described by Dr. Lindley. It forms a stout shrub, with bright green leaves from 5 to 7 inches long, and pale rose-coloured flowers from 3 to 3½ inches in diameter, in heads of eight to ten.

Ilex latifolia (Broad-leaved Japanese Holly).—"This noble Holly," says Dr. Hooker, "though often supposed to be one of the later importations from Japan, has long been cultivated in the Royal Gardens, where it has stood without protection, trained against a wall for many years, and quite uninjured. In the open air I have not observed it flowering, but it flowers abundantly in the temperate-house during June and July. In other places near London and elsewhere it is cultivated as a standard; and though I have never seen it luxuriant under such circumstances in the east of England, it no doubt succeeds perfectly in the west. It is a beautiful shrub, of a paler green than the common Holly, with similar berries, and the flowers are produced in round heads of a pale yellow colour."

Huntleya cerina.—A beautiful Orchid, originally discovered by Warszewicz in Veragua, on the volcano of Chiriqui, at an elevation of 8000 feet, and first flowered by Mr. Rucker. It has also flowered with J. Bateman, Esq., at Knypersley, and at Messrs. Veitch's. The plant is a bulbless epiphyte, producing tufts of leaves about a foot long. The flowers have pale straw-coloured petals and sepals, 1½ inch long, and a yellow lip.

Nierembergia Veitchii.—An elegant species, introduced by Messrs. Veitch, from Tucuman. It grows about 8 inches or a foot high, and has pale lilac campanulate flowers.

Kæmpferia Roscoeana.—A native of Burmah, where it was discovered by Dr. Wallich in 1826, and flowered three years afterwards at Chiswick. It is remarkable for producing only a single pair of leaves; but in these the beauty of the plant consists. They are 4 or 5 inches long, orbicular, of leathery texture, and of an opaque green, mottled or prettily zoned with paler green. Between them small white flowers are produced, but only one at a time.

OUR MONTHLY CHRONICLE.

Crystal Palace Show.—This took place on the 5th and 6th of September, and though Roses, Dahlias, and Hollyhocks were numerously and well shown, there was a great falling off in the fruit, both as regards quantity and quality. Out-door fruit is generally small this year, and it has been remarked that in many places varieties come so much out of character that it is difficult to distinguish them. Accordingly, many growers who

usually exhibit at this Show, did not put in an appearance, and the competition was principally confined to those enjoying favourable climates in the southern parts of the country. We transfer, with some abridgement, from "The Journal of Horticulture," the following particulars as to the subjects exhibited:—

Of Fruit only two collections were shown: that from Mr. T. Dawson, gardener to Earl Cowper, Panshanger, to which the first prize was awarded, consisted of a Black Prince Pine Apple, good bunches of Barbarossa and Muscat Grapes, a Green-fleshed Melon, fine Violette Hâtive Peaches, Elruge Nectarines, and Florence Cherries. Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, was second with a Queen Pine, Black Hamburgh and Muscat Grapes, Scarlet Perfection Melon, Peaches, Nectarines, Cherries, and Pears.

Pine Apples were not numerous nor remarkable for quality; there were, however, a few good Queens. For three fruits, Mr. Dawson was first with Smooth-leaved Cayenne, Providence, and Black Prince; and Mr. Chilman, gardener, to the Earl of Normanton, Ringwood, second with a Queen and two Smooth-leaved Cayennes. Mr. Page, gardener to W. Leat, Esq., Streatham, exhibited two of the latter, weighing 5 lbs. each, and Charlotte Rothschild, 4 lbs.; and Mr. Wallis, gardener to J. Dixon, Esq., Astle Park, Providence, Enville, and Brown Sugar-loaf. A well-ripened Queen from Mr. R. Smee, gardener to W. H. Stone, Esq., M.P., Dulwich, was first in the class for that variety; Mr. Elstone, gardener to S. Lawrence, Esq., Clapham Park, being second with a fruit of 4 lbs. 6 ozs.; and Mr. R. Craik, gardener to G. Soames, Esq, was third. In the class for any variety, Mr. J. Douglas, gardener to F. Whitbourne, Esq., Ilford, was first, and Mr. Page second, with Smooth-leaved Cayenne; and Mr. Douglas also took the third prize with Charlotte Rothschild, weight 5 lbs.

There was not nearly so fine an exhibition of Grapes as might have been expected, though several very excellent bunches were shown. The Black Hamburghs from Mr. Meredith, of Garston, which took the first prize in the class for Black kinds, were, as usual, remarkably fine, the bunches being very large, and the berries large and finely coloured. Mr. Osborne, Kay's Nursery, Finchley, who was second, had also very fine bunches, though not so even as Mr. Meredith's in the size of the berries. Equal third prizes were awarded to Mr. R. Norris, gardener to A. Bosanquet, Esq., Southgate, for Black Hamburgh, and to Mr. Devenish Rodwell, Weymouth, for fine but somewhat loose bunches of the Muscat Hamburgh, weighing 10 lbs. 1 oz. These were all three on the same rod, and it was a matter of surprise that three such bunches should have been produced within so short a distance of each other. Of White Grapes, the best were beautifully ripened Canon Hall Muscats from J. Hollingworth, Esq. Mr. Irving, gardener to the Duke of Hamilton, was second with good well-ripened bunches of Buckland Sweetwater; and Mr. Osborne, Finchley, and Mr. Bailey, gardener to T. T. Drake, Esq., Shardeloes, were equal third for Muscats. The heaviest bunch of any kind was a very fine one (weight not stated), of Black Hamburgh, not, however, quite perfect as regards colour, shown by Mr. Osborne; and a bunch of the same kind, weighing upwards of 4 lbs., from Mr. Irving, was second. There were several good baskets of 12 lbs. and upwards, mostly consisting of Black Hamburgh. Mr. R. Norris, gardener to A. Bosanquet, Esq., was first, and Mr. Osborne, Finchley, second with that kind, and equal third prizes were awarded to Mr. W. Toomer, gardener to J. Perrett, Esq., Herne Hill, for Muscats, small in berry but well ripened, and to Mr. T. Frost, Maidstone, for Black Hamburgh.

Peaches and Nectarines were all rather small though well coloured. The former chiefly consisted of Grosse Mignonne, Royal George, Royal Charlotte, Noblesse, Barrington, Violette Hâtive, and Bellegarde. Mr. Thorneycroft, Floore, Weedon, was first; Mr. Crane, gardener to the Rev. L. Deedes, second, with Royal Charlotte; and Mr. Hazell, Denmark Hill, third, with Grosse Mignonne. Some good fruit of Royal George, grown in pots in an unheated orchard-house, came from Mr. Douglas, gardener to F. Whitbourne, Esq. For Nectarines, Mr. King, gardener to G. Roder, Esq., Slaugham, was first with a good dish of Violette Hâtive; Mr. Sutherland, gardener to Mrs. Jamieson, Fulham, second with the same variety; and Mr. Dawson, third with Downton. Some finely-coloured fruit of Rivers's Orange, from orchard-house trees, were shown by G. F. Wilson, Esq., Weybridge. Elruge, Roman, Pitmaston Orange, Murrey, and one or two other varieties were also fairly represented.

Melons were shown to the number of three score. The best Green-fleshed was Preston Hall Hybrid from Mr. Frost, Maidstone; Mr. Samuel, Broom Park, Betchworth, was second; and Mr. Chilman third. Of the Scarlet-fleshed varieties Scarlet Gem had the pre-eminence, Mr. Stacey, gardener to E. Rayment, Esq., Norwood, being first with it; Mr. Bailey, second; and Dr. Cooper, Slough, third.

Figs were not numerously shown, but very good. The best were very fine Brunswick and Brown Turkey, from Mr. Dennis, gardener to H. Hayward, Esq., Folkington; next came Black Ischia and Brunswick, from Mr. Samuel, Betchworth. Mr. Turner, of Slough, was third; Mr. Lacey, gardener to C. S. Mortimore, Esq., Morden Park, fourth.

Plums were tolerably numerous, but scarcely so good as in former years. R. Webb, Esq., of Reading, was first with excellent dishes of

White Magnum Bonum, Goliath, and Coe's Golden Drop. Mr. Bailey was second with Victoria, Washington, and Prince of Wales; and Mr. Shoebridge, gardener to E. C. Goad, Esq., Carshalton, third, with Goliath, Jefferson, and Washington. Mr. Gilbert, Stoke, Slough, had a fourth prize for the first and last, and Pond's Seedling. Excellent orchard-house fruit of Transparent Gage, Coe's Golden Drop, and Reine Claude de Bavay, came from Mr. Wilson, Weybridge.

Of dessert Apples the best four dishes were Red Pearmain, Red Astrachan, Col. Vaughan, and Reinette du Laak, from Messrs. Lane, St. Mary's Cray; Mr. Gilbert, Stoke, was second with Bishop's Pippin, Devonshire Quarrenden, Cox's Orange Pippin, and a red-streaked seedling; Mr. Webb, Reading, third, with Red Astrachan, Scarlet Nonpareil, Ribston and Cox's Orange Pippins; and Mr. Beester, Goring, Sussex, fourth, with Fearn's Pippin, Red Astrachan, Bull's Golden Reinette, and Cellini. Among other kinds we noticed Early Strawberry, pretty, but not of much value as regards flavour, Kerry Pippin, Ashmead's Kernel, King of the Pippins, Pearson's Plate, Early Red Margaret, and Irish Peach. The first prize for kitchen Apples was taken by Mr. Willmore, Hoyle Place, with good examples of Alexander, Red Astrachan, Blenheim and Stone's Pippins. Mr. Mortimore was second with a kind called Putt's Pudding, Cellini, Lord Derby, and Lord Suffield. Messrs. Lane, St. Mary's Cray, were third, and Messrs. Gadd, Dorking, fourth.

The best three dishes of Pears were exhibited by Mr. Gilbert, of Stoke, Slough, who had good examples of Williams's Bon Chrêtien, Louise Bonne of Jersey, and Duchesse d'Angoulême. Mr. Harrison, Oatlands Palace Gardens, had fine dishes of the two last-named kinds and Beurré Clairgeau; Mr. Richbell, gardener to — Heathcote, Esq., Epsom, good Beurré Diel and Beurré Clairgeau; and Mr. Bonner, gardener to the Rev. J. Cooper, Woking, Gansel's Bergamot, Duchesse d'Angoulême, and Marie Louise. The prize for the heaviest dish of twelve was awarded to Mr. Gadd, gardener to J. Jaffray, Esq., for Uvedale's St. Germain, weighing 10 lbs. 4 ozs. G. F. Wilson, Esq., was second with one of Maréchal de la Cour, weighing 8 lbs. 4 ozs., and Mr. O. Goldsmith third. Pears shown for flavour consisted almost exclusively of Williams's Bon Chrêtien and Jargonelle. The second and third prizes were awarded to the former kind shown by Mr. Grover, of Hammersmith, and Mr. Fraser, of Lea Bridge, whilst the first went to a variety unnamed, exhibited by Mr. Thorneycroft.

Mr. Toomer, gardener to J. Perrett, Esq., Herne Hill, exhibited a Black Hamburgh Vine bearing splendid bunches. Messrs. Lane & Sons and Mr. Hope, gardener to W. Murrell, Esq., also exhibited beautifully fruited specimens, and some good pot Vines, though of smaller size, came from Mr. Geirs, Norwood. Vines, Pear, Apple, and Plum trees in pots, were shown by Mr. Fraser, together with excellent dishes of ripe fruit from pot trees; and pot Plum and Peach trees came also from Mr. Vertigan, Clapham Common. Mr. Webb, of Reading, furnished twenty kinds of Filberts, among which were several of his own raising, and Mr. Kemp, gardener to E. Bentall, Esq., a cluster of Musa Cavendishii, on a stem upwards of a foot in diameter, which had been an unrooted sucker but fourteen months ago. Mr. Sage, gardener to Earl Brownlow, likewise exhibited a cluster of the same Banana. A good dish of Victoria Red Currant came from Mr. Vertigan, Clapham, also one of Sir Charles Napier Strawberry. From Messrs. Barr & Sugden came a collection of Onions; and from Messrs. Cutbush very fine bulbs of the Nuneham Park Onion, all of which were said to weigh at least 1 lb. each, and one as much as 24½ ozs. The same firm also contributed dishes of their Giant Kidney Bean, which, though the pods were large, was crisp and succulent.

In the floral department of the Show, the stands of Dahlias were numerous, and the blooms for the most part excellent. In the class for forty-eight, Mr. Keynes, of Salisbury, was first with fine blooms of Golden Admiration, King of Sweden, Matilda, Queen of Primroses, Delicata, Edward Spary, Baron Taunton, Lord Shaftesbury, Chairman, James Backhouse, Miss Henshaw, Flossy Girl, George White, Leah, Paradise Williams, Mrs. Wyndham, Andrew Dodds, Umpire, John Wyatt, Charlotte Dorling, Annie Austin, Disraeli, Anna Keynes, British Triumph, Lady of the Lake, Freemason, Lady Mary Wilde, Golden Gem, Jenny Austin, &c. Mr. Walker, of Thame, was second, the third prize going to Mr. Kimberley, of Coventry, and the fourth to Mr. Morse, of Epsom.

For twenty-four blooms Mr. Keynes was again first with excellent examples of Queen of Primroses, Lady of the Lake, Chairman, James Backhouse, Lord Derby, Charlotte Dorling, Lady Gladys Herbert, Golden Admiration, Bob Ridley, Norfolk Hero, Earl of Pembroke, Anna Keynes, George Wheeler, &c. Mr. Draycott, Humberstone, Leicester, was second; Mr. Legge, Edmonton, third; Mr. Thame, fourth; and Mr. C. Kimberley, fifth.

In the Amateurs' class for the same number, Mr. C. J. Perry, Castle Bromwich, was first with fine blooms of Chairman, Arthur, Phidias, Anna Keynes, Andrew Dodds, Master of Arts, Messenger, Lady G. Herbert, Lord Derby, Alexandra, Hugh Miller, George Brown, British Triumph, Juno, Criterion, Charlotte Dorling, Pauline, &c. Mr. Thorneycroft, Floore, Weedon, was second; Mr. Hopkins, Brentford, third; Mr. Hedge, Colchester, fourth; Mr. Glasscock, Bishop Stortford, fifth; and Mr. Cottis, Newhall, Chelmsford, sixth.

In the class for twelve blooms, the best stand came from Mr. Thorneycroft, the varieties being Lord Palmerston, Volunteer, Fanny Purchase, seedling, Lord Derby, Model, International, Willie Austin, Juno, Miss Henshaw, British Triumph, and Matilda Keynes. Mr. Glasscock was second with Goldfinder, Fanny Purchase, Bird of Passage, Delicata, Lord Derby, Mrs. Belton, &c. Mr. Lakins, Shooters Hill, was third; Mr. Hopkins, fourth; Mr. Hedge, fifth; and Mr. J. C. Perry, sixth.

Of the Fancy varieties the stands were not very numerous. The best twelve blooms in the Nurserymen's class came from Mr. Keynes, and consisted of Chang, Formidable, Regularity, Lightning, Octoroon, President Lincoln, Remarkable, Lord Warden, Messenger, Butterfly, John Salter, and Ebor. In the corresponding class for Amateurs Mr. Perry occupied a similar position with John Bunn, Sam Bartlett, Queen Mab, Octoroon, Pauline, Triomphe de Roubaix, Regularity, and Artemus Ward. Mr. Thorneycroft was second, and Mr. Petfield, gardener to G. Thornhill, Esq., Diddington, third.

A good number of seedlings were exhibited. First-class certificates were awarded to Mr. Keynes, for Paradise Williams and for Princess of Wales, delicate lilac with white centre, tipped with violet; Vice-President, golden yellow; and Butterfly, reddish orange, received second-class certificates. Mr. Petfield, had a similar award for a pleasing flower, white, tipped with purplish lilac; also, Mr. Pope, of Chelsea, for Pope's Gem. Mr. Burgess had likewise a second-class certificate for Mrs. Burgess, violet crimson, tipped with brighter crimson. Vanguard and Bijou from Mr. Wheeler, of Warminster, were also awarded second-class certificates.

The best stands both of German and French Asters, came from Mr. Stanford, gardener to J. Thomassett, Esq., Walthamstow, and contained blooms of remarkable size and beauty.

Besides twelve boxes of beautiful cut blooms of Roses, furnished by Mr. William Paul, wonderfully fine for the season, he exhibited fine specimens of Amy Hogg and other Nosegay Pelargoniums, as well as dwarf standard plants of Mrs. Pollock, and some other variegated kinds. A collection of variegated shrubs and Ivies, likewise from the Waltham Cross Nurseries, attracted considerable attention. Mr. Turner, Slough, received first-class certificates for Nosegay Pelargoniums Duchess of Sutherland and Lady Constance Grosvenor, a fine orange scarlet; and Mr. C. J. Perry, one of the second-class for Shirley Hibberd, rosy scarlet.

In the class for twenty-four single blooms of Roses Mr. Keynes was first, and in the class for thirty-six the positions of the exhibitors were reversed.

In the class for eighteen blooms, Mr. Hollingworth, of Maidstone, was first, and Mr. Hedge, Reed Hall, Colchester, second. We must not omit the magnificent box of Maréchal Niel contributed by Mr. Keynes, and a smaller though more highly coloured one by Messrs Paul & Son. That this is a magnificent and free-blooming Rose does not admit of a doubt.

Some fine Gladioli were exhibited by Messrs. Kelway, of Langport, Messrs. G. Paul & Son, and Mr. Prince. Mr. Ingle was the only contributor amongst amateurs.

The Rev. E. Hawke, Willingham Rectory, was as usual first in Hollyhocks, his flowers both in twenty-four and twelve, were remarkably fine, and comprised Charmer, Acme, Hercules, Invincible, George Young, George Keith, Lilac Perfection, Orange Perfection, Mr. J. B. Ullett, Willingham Defiance, W. Dean, Senior Wrangler, Fair Ellen, Prince, Countess of Craven, Amber Queen, and a number of seedlings. The incessant rain must have been very much against these flowers, but they were shown remarkably clear and good.

In Verbenas Mr. Perry was the only exhibitor whose flowers were worth looking at. He sustained his usual high character as the prince of cultivators in this class of flowers.

Royal Caledonian Horticultural Society.—The autumn Show was held in the Music Hall and Assembly Rooms on the 5th and 6th of September, and proved a great success, though the subjects exhibited were scarcely so numerous as at the great Show of last year. Pines were remarkably fine, especially the Queens from Mr. Fowlis and Mr. Peacock, Castle Dykes, and the Smooth-leaved Cayennes from Mr. Munro, of Liverpool. A plant of the Hurst House shown by Mr. Fowler, Castle Kennedy, was bearing a fruit swelling off, which could not weigh less than 8 lbs. Grapes, though not quite so numerous as last year, were even better as regards quality. Mr. Fowler was the only exhibitor in the class for single bunches of eight sorts, his kinds being Black Hamburgh, 1½ lb. weight; Morocco, 2 lbs.; Black Prince, 3½ lbs.; Muscat Hamburgh, 4 lbs.; Trebbiano, 4 lbs.; Muscat of Alexandria, 3 lbs.; Golden Hamburgh, 1½ lb.; and Duchess of Buccleuch, 3½ lbs. The last-named variety measured no less than 16 inches long by 13 inches across. For four kinds Mr. Meredith, of Garston, was first with Black Hamburgh, finely coloured, and Trebbiano, Aramon, and Muscat of Alexandria. The heaviest three bunches came from Mr. Fowler, who had White Nice, weighing 10 lbs., and measuring 23 inches across and 20 inches long; Muscat Hamburgh, measuring 16 inches by 13, and of the extraordinary weight of 6 lbs.; and Trebbiano, weighing 6 lbs. The heaviest bunch of White Grapes also came from Mr. Fowler, being White Nice, in weight 10¾ lbs. The Black Hamburghs shown by Mr. Meredith in the class for two bunches of that variety, were superb; and those from Mr. Hill, of Keele Hall, were

also fine. The first and second prizes for the best-flavoured White Grape were both taken by Duchess of Buccleuch, although in competition with the Muscat of Alexandria; and the best-flavoured Black proved to be Muscat Hamburgh, which took all the prizes in that colour. The principal prize in the competition was that for a collection of twenty sorts of fruit; and it was taken by Mr. Thomson, of Dalkeith, with fine Queen and Smooth-leaved Cayenne Pines, Melons, excellent dishes of Grapes, Currants, Gooseberries, Peaches, Nectarines, Apricots, Plums, Cherries, Apples, and Pears. Mr. Temple, Balbirnie, took a similar position in the class for collections of sixteen sorts. Some very good Peaches and Nectarines were shown; and among seedlings was a new Plum of first-rate quality shown by Mr. Webster, gardener to the Duke of Richmond, Gordon Castle.

Of Heaths and fine-foliaged plants there was also a good exhibition; and the Hollyhocks and Gladioli from Messrs. Downie, Laird, & Laing were very fine.

OBITUARY.

John Jackson Blandy, Esq., for many years a member of the Council of the Royal Horticultural Society, and latterly one of its Vice-Presidents, died at his residence at Highgrove, near Reading, on the 2nd of September, aged 72. Mr. Blandy was strongly attached to horticulture, and was ever active in endeavouring to promote its interests. When the International Horticultural Exhibition of May last was set on foot he gave in his adhesion to the project at an early stage, and acted as the Deputy Chairman of its Executive Committee.

Dr. George Mettenius, a celebrated pteridologist and Professor of Botany in the Leipsig University, was carried off by cholera on the 18th of August, in the forty-third year of his age.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—If previous directions have been acted upon, the stock of young plants which we have recommended to be grown for winter flowering will now be nice bushy stuff, and will include various Justicias, Aphelandras, Eranthemums, Euphorbia splendens, Gesneras, and Allamandas. These should now be placed in the stove, and will in a few weeks commence blooming, and continue doing so throughout the winter. *Orchids.*—The principal part of the stock will now be at rest. A few Lælias, Cattleyas, &c., which bloom at this season, should be kept in dry places, moderately warm, to prolong their beauty. Keep the East Indian species, which rarely cease growing for any length of time, in an atmosphere moderately humid, reducing the night temperature a few degrees. As some kinds put early to rest will show bloom at this season, they may be removed to a moister heat to bring them on, and be afterwards placed in the driest part of the house to bloom.

GREENHOUSE.

Mixed Greenhouse.—The whole of the plants which have been standing out during the summer should at once be put into the house. To make room for a time a portion may be placed in a spare pit or frame, till the Liliums, &c., have done blooming, when more room can be allowed them. Let the plants, pots, and soil be well cleaned before taking them in. Leave a little air on at night to keep the plants hardy. *Camellias and Azaleas.*—These should be placed in their winter quarters forthwith, if not already done. Let the drainage of the pots be examined before they are taken in, the pots clean-washed, and the surface soil loosened, adding a little fresh compost when necessary. If the buds on the Camellias are too thickly set, thin them out to regular distances, 3 or 4 inches apart. Let the Azaleas be looked over, and any plants infested with thrips should be put into a close room or pit, and fumigated two or three times with tobacco, allowing them two days' respite between each dose. Well syringe afterwards, and arrange them in their winter quarters. *Cinerarias.*—Mildew is often troublesome at this season; dust the parts affected with sulphur as soon as it appears, whether the plants be seedlings or named varieties. Those for exhibition, or to decorate the home stage, will require a shift this month, using light rich soil. A cool pit or frame near the glass is the best situation for Cinerarias during the autumn months, removing them to a pit or low greenhouse that has the means of keeping out frost when winter fairly sets in. *Pelargoniums.*—Keep the house dry and well aired, but not too cold; the stock will suffer if the houses are allowed to become cold and damp. Repot, stop, &c., as recommended last month. The plants should be encouraged to make good growth during October and November, but should rest during December. Neither large plants nor young stock should be crowded together, which is too often the case.

CONSERVATORY.

Let the climbers on the roof and other parts of the house be now gone over, cutting away any useless shoots which have done blooming; the remainder may be tied in a little closer, to admit more light to the plants beneath. Plants growing in the open borders should likewise be gone over, pruning in any straggling growths. Large specimen plants, and Orange trees which have been placed out of

doors for the summer, should now be brought in. Let the tubs, pots, &c., be well cleaned before this is done, and the drainage looked to. When finished, the whole of the inside borders and paths should be thoroughly cleaned. Give air in abundance in mild weather.

FORCING.

The period during which the forcing-houses have been at rest will have been employed in putting them in good repair, and seeing that the heating apparatus is in working order. The first house, of both Vines and Peaches, may be pruned at once. The sashes may be put on the early vinery towards the end of the month, if very early Grapes are wanted. Keep late Grapes dry, by giving air night and day, putting on a little fire when the days are wet, to dry up damp. Vines and fruit trees in pots should now be placed to winter behind a north wall. *Cucumbers and Melons.*—Any late Melons still left to ripen should be encouraged by a little fire heat or the application of warm dung linings; the bottom heat, likewise, should not be allowed to decline. Some late Melons will keep for a long time after being cut, if placed in a dry room. Cucumbers for winter bearing should be transferred to large pots or boxes plunged in bottom heat, which should be kept steady at between 85° and 90°; the night temperature should range between 65° and 70, with plenty of moisture. Encourage plants in full bearing by the application of liquid manure. *Pines.*—Plants swelling their fruit must be kept in a moist temperature. We do not care about much syringing, preferring to maintain moisture by evaporation. Do not allow the bottom heat to decline below 85°; the night temperature may be 60°. Plants required to fruit early will now be wintering, under the influence of a full exposure to light, and abundance of air; they should, besides, be kept rather dry at the root; this will ensure good stocky plants with well-ripened leaves.

KITCHEN GARDEN.

Attend to former directions. Tie up Endive for blanching, also Cauliflowers coming in; the leaves will protect the heads from frost. Plant out Cauliflowers and Lettuces in a warm situation, on rich soil, for covering with hand-glasses or cloches. The latter are useful for enabling one to have good salads throughout the winter; therefore place some over well-established Lettuce plants towards the end of the month. Let the kitchen garden have a good cleaning before winter, removing everything which will give harbour to slugs and vermin. Still continue to hoe between advancing crops Where Broccoli is growing too strong take it up and lay it in with the heads to the north; this will check its growth and preserve the heads from frost.

FRUIT GARDEN.

Hardy Fruit.—Golden Drop and Impératrice Plums on walls should be kept dry, to preserve them; or they may be gathered and kept for a long time, by laying them singly in a dry room. As soon as the leaves begin to fall, fruit trees of all kinds may be transplanted either to walls, espaliers, or orchard grounds, this being the best time for the purpose, besides giving you the pick of the nurseries. Secure the beds from high winds when planted, and mulch the surface. In the case of hardy and orchard fruits pruning may take place towards the end of the month, particularly if summer pruning has been neglected.

FLOWER GARDEN AND SHRUBBERY.

Pay a little extra attention to the lawn and walks at this season; now that the beauty of the flower garden is on the wane, dead blooms and decayed leaves should be removed, and every means taken to keep up a gay appearance as long as possible.

FLORISTS' FLOWERS.

Auriculas.—Keep them in a cool northern aspect for some time to come. See that the glass is in good order, that there may be no drip, and keep it clean; also give plenty of air, and but little water. Dead foliage and aphides should always be removed as soon as they appear. *Carnations and Picotees.*—Finis potting for wintering as soon as possibe; all should be completed by the 20th of the month. Harden those that were first potted; they should not, however, be exposed to heavy rains. Keep all clean of dead foliage. *Dahlias.*—Secure seed as soon as it can be procured ripe enough, and look over the collection to see that all are rightly named before frost visits us, spoiling the appearance of our gardens. Mark any promising seedling for trial next year. *Hollyhocks.*—Seed can now be procured in abundance, which should be gathered before the rains of autumn have damaged it. Continue to put in cuttings as they can be procured, and pot up the old stools of choice varieties for the purpose of propagation during the winter months. *Pansies.*—Now is the time for the general potting up from the store beds of the plants intended for blooming in pots, or to fill beds in March; give plenty of air, but not too much water; they can be effectually cleared of mildew if carefully dusted with sulphur before it has got too far ahead. Healthy cuttings put in now make excellent plants in a short time. Plant out seedlings for blooming, and gather seed from the finest autumn flowers for spring sowing. *Pinks.*—Finish planting, if not already done, and pot up a few hundred pairs, to plant out in beds late in February, or early in March; they take but little room, winter well with certainty, and produce beautifully laced flowers, if properly attended to *Tulips.*—If the beds have been prepared, as directed in previous numbers, plant about the 1st of November, choosing a very fine dry day. If the bulbs have not already been arranged, it should be done at once, before any begin to push.

Pelargonium Dr Hogg.

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PELARGONIUM DR. HOGG.

WITH AN ILLUSTRATION.

THE subject of our present plate—Pelargonium Dr. Hogg—was raised from the original stock of Beaton's hybrids, by Mr. Wm. Paul, of the Nurseries, Waltham Cross. Beaton's race is now so widely known, and so generally appreciated, that it scarcely requires any commendation at our hands. The majority of kinds have been planted extensively in the Royal Gardens at Kew, and at Battersea; and while by means of their introduction the range of colour among Pelargoniums is materially extended, it is also found that these hybrids flower more profusely and are less spoiled by the weather—be it sun, wind, or rain—than the kinds derived from other sources. Alexandra, Amy Hogg, Indian Yellow, Duchess, Glowworm, Orange Nosegay, Mrs. Wm. Paul, and Waltham Seedling are now almost universally known and appreciated; and their successors Fairy Queen, Nimrod, Peach Nosegay, Rebecca, St. George, Sir J. Paxton, Lord Chancellor, Tiara, Salmon Nosegay, and Waltham Lilac, have already found their way into many of our principal gardens. Dr. Hogg, which is as yet in the hands of the raiser and will not be sold before May, 1867, is an improvement in form on the preceding, and has more of the blue or purple shade of colour than any previously announced. When shown in the subdued light of the exhibition tent it has some resemblance to Amy Hogg, but when seen in masses out of doors, in the full clear light of day, it is of an entirely different shade of colour; and the plant is of so dense a growth, and the flowering so free, that it is worthy of a place in the most limited flower garden.

The subject of the present illustration will form one of a set of new varieties selected from many thousand seedlings which will be first offered for sale in the spring of the coming year.

A FEW WORDS ABOUT BEDDING PLANTS.

THE season now closing has been on the whole very unfavourable for flowers out of doors. May was very dry with a good deal of sunshine, which made it warm in the middle of the day; but for the greater part of the month the nights were exceedingly cold, with very cutting northerly winds, and, in consequence, bedding-out was commenced later than usual. About London, even, there was scarcely anything done up to the end of May. With June came fine refreshing rains, which set every person to work planting out; but these fine rains were followed too soon by very bright, hot, sunshiny weather, just at the time the days were at their greatest length. This dried up the soil before the newly-bedded plants got established, so that frequent heavy waterings became a necessity to keep the plants alive. The early part of July was fine; but with the close of the month came heavy, drenching rains and violent gales of wind, which shattered Roses, Calceolarias, Geraniums, &c. Since then the weather has been very wet, with rarely two consecutive fine days up to the present time (15th of October), rendering the harvest tedious for farmers in this part, and causing serious results to the crops.

Had the beauty of our flower gardens depended entirely on flowering plants, as it did in days not long gone by, their appearance would not have been as gay and beautiful during the last two months as they have been. Variegated-leaved Geraniums and other ornamental coloured-leaved plants have amply made up for the loss of flowers; and the rains, which have been so injurious to the flowers, have brought out the foliage in all its beauty. I

think I never saw many of the variegated-leaved Geraniums more beautiful than they have been for several weeks past. Among the silver-leaved varieties, Flower of Spring and Mrs. Lennox have been very beautiful; Bijou, Countess of Warwick, Alma, Mountain of Snow, and Queen of Queens have also been very fine; and among the gold-leaved varieties Golden Chain, Cloth of Gold, Golden Fleece, Mrs. Pollock, and Sunset. Many of the other kinds have also been very fine. There were numerous complaints last season about Cloth of Gold not doing well. I think I never saw it more beautiful than it has been here this season, and is at the present time. A good rich soil to grow in and frequent refreshing showers, or, in the absence of the latter, frequent heavy waterings, bring it out in all its beauty. Mrs. Pollock and Sunset have been very fine; the latter I have not seen noticed or grown so much as I think it deserves. After a few days of showery weather the leaves look like so many brilliant butterflies. All the variegated-leaved kinds require to be grown in good rich soil, and in dry weather to be well watered. The Nosegay and Horseshoe-leaved varieties have not been so beautiful as usual this season, in consequence of the almost constant heavy rains and the absence of bright sunlight. In general they do very well in a poorer soil than the variegated-leaved kinds, and when established they require little or no water.

Centaureas have done well, and have been very effective, and so too has Cineraria maritima. Perilla nankinensis grows freely everywhere, and is a very manageable and useful pant. Iresine Herbstii is a very valuable bedding plant. I bedded it out at the end of May, and it was very effective even then. It stood the hot sunshine of June and July, and has not only withstood the many weeks of wet weather which we have had since, but has daily improved, and is at the present time very beautiful. Amaranthus melancholicus ruber, planted in a bed not far distant from the Iresine, rotted completely away with the rains; not a single plant has survived, though the bed in which it was planted was drier and more favourably situated than the one the Iresine was in. The Iresine I have in several beds, and it has done well in all, both exposed and sheltered. The Amaranthus did pretty well last year, as did also Coleus Verschaffelti in 1864; but these were fine, hot, dry seasons; but in cold, wet years they will not do for flower gardens in Yorkshire, nor do I think they will for London—that is, if they are put out in May, so that there may be a display of at least from four to five months' duration.

Delicate, tender plants, however beautiful they may be, that will only do in fine seasons, and then only for two, or at most three months, are of no use for the flower garden. We want plants that can be bedded-out about the middle of May, and that will then be effective and continue so until the middle or end of October. We then have fully five months' beautiful display. We already possess ample material for effecting this, and every year will add to the number of plants suitable for the purpose. We can get five months' display in Yorkshire. I generally get all bedded-out in May. With plenty of variegated-leaved and Zonale Geraniums, other ornamental coloured-leaved plants, and the usual flowering plants, the gardens look exceedingly gay and cheerful, and continue to do so until the end of October. Some seasons a severe frost will disfigure some of the beds in the beginning of October, but this is only a rare occurrence. The flower garden here is now (October 15th), as gay as it has been any time this season. In the country, where we have so much green, with grass and green trees all about, we cannot use warm decided colours too freely; the case is different near towns, where the eye wearies of bricks and mortar. Beautiful and effective as many of variegated plants are, plenty of flowering plants must also be used in all flower gardens where a gay and brilliant display is required for some months.

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Most or all the variegated-leaved Geraniums may be planted out after the middle of May if they have been properly hardened off; of course, late spring-struck cuttings pushed on in heat under the shade of Vines cannot be properly hardened off for planting out in May. When the greater part of the beds in our flower gardens were planted with Verbenas, Petunias, and similar plants, spring-struck cuttings answered admirably; but Geraniums of all kinds should be struck in August. Only new kinds, or those of which a large stock may be wanted, should be struck in spring, and then it should be as early as possible, that the plants may become strong and be well hardened off before the end of May. Cuttings of Geraniums put in in August in any sandy soil and shaded a little from the sun, will strike root anywhere out-doors with little or no trouble. They get to be good strong plants before the short days and dull weather come on. They are easily wintered, and when potted off in spring and hardened off in cold frames without shading and with plenty of air, they can then be safely ventured out after the middle of May in ordinary seasons. If the beds have been properly prepared, and the plants are put out from the 15th to the 20th of May, they will be making fresh roots, and will get nicely established by the middle of June, and, though they may not have much growth at top, with favourable weather they will then push away rapidly, and will resist the hot weather of midsummer better than those late planted. When Tulips and other bulbs have been grown in the beds late planting cannot then be avoided.

I recommend all amateurs and young gardeners who wish to have a good display in the flower garden early in the season, and wish it to continue as late as possible, to plant largely variegated-leaved Geraniums and ornamental coloured-leaved plants, as well as flowering plants, using the former freely for edgings and for combining with the latter. I recommend them to plant the variegated-leaved Geraniums in good rich soil, and the plain-leaved, Zonale, and Nosegay varieties in not very rich soil. If they do this the results will be satisfactory.

Stourton. M. Saul.

REMARKS ON FRUIT TREE CULTURE.—No. 14.

In my last I detailed instances in which success was attained by altering the mode of treatment in the culture of the Apricot to one more consonant with the principles by which practice must be regulated; and my object has been to point out in what way the method of culture adopted may be calculated to frustrate instead of furthering the object in view, and thus, by placing the right and the wrong in opposition, to assist the mind in comprehending, and the memory in retaining, the probable causes which are likely to influence success or failure. I do not mean to say that I am always right, or that my deductions are invariably correct, or even logical; but I am so persuaded that fruit tree culture may with good reason be expected to take a much higher position in the future, owing to the greater facilities for acquiring knowledge, and consequent increase of intelligence on the part of all who avail themselves of those facilities, that I wish to keep the subject before the mind of the young gardeners of the present day, in the hope that their cultivated powers of mind may be brought to bear on this important subject; for when practice is founded on an intelligent comprehension of the leading principles by which vegetation is influenced, something good will be sure to come of it; and if success does not always follow, and mistakes are made, there will be more valuable practical knowledge gained from the discovery and correction of such mistakes than from success which may be, and often is, the result of chance or highly favoured locality.

In preparing a border for Apricots, thorough drainage is indispensable, for although during the growing season, and more particularly about the time the fruit is stoning, they will require a constant and liberal supply of water, yet it is necessary that it should gradually percolate away through the drainage; for anything like sourness in the soil, arising from the stagnation of water therein, will very soon tell upon the well-doing of the trees, and is, in fact, often the sole reason why they refuse to flourish in some localities otherwise favourable, but more particularly in such as have a subsoil of strong clay.

A favourable condition of soil in a natural state for the growth of Apricots would be a deep friable loam, resting upon a porous gravelly subsoil, and about the least favourable would be a shallow strong loam on a clay subsoil. Wherever, therefore, the latter, or any assimilation thereto, prevails, a corresponding amount of care must be bestowed upon the preparation of the borders. In such a case, to secure a minimum depth of 2 feet of compost, the earth should be excavated to the depth of 30 inches close to the wall, the bottom gradually sloping to the front of the border, which should have a minimum depth of 40 inches. The width of the border should not be less than 15 feet; more would be better, because the temptation to crop such borders is too great to resist, and as there should always be a space of 5 feet from the wall kept free of crops, the wider the border is made the less necessity will there be for encroaching on that five-feet space. Along the front of the excavated border sink a small trench, in which place draining pipes of 4 or 6 inches in diameter, and from one end of these carry a substantial drain to some convenient outfall. What I should call a substantial drain in this case would be draining pipes of the above size covered with a foot or 18 inches of broken bricks or stones, and except in case of accidents such a drain would last for generations; for should the drain become choked by silt or other débris, or be penetrated by roots, the water would pass freely away through the broken stones. The drainage for the border, consisting of broken bricks and stones, should now be wheeled in, and laid to the depth of 6 inches near the wall and a foot or more near the front; cover the stones with fresh turves cut thin and laid with the grassy side downwards, and then fill up the border with the prepared compost, which, for Apricots, may consist of two-thirds of good friable loam and one-third of vegetable matter, not manurial, to which may be added a portion of old mortar rubbish, and, during the process of mixing, a few handfuls of salt thrown in occasionally.

In a border so prepared it would be a great waste of time to plant small trees, because trees of from four to six years of age, and just ready to commence bearing fruit, may be planted with great success. Suitable trees of the kind may generally be found in those nurseries where the proper cultivation of fruit trees is made a speciality; but as no tree more requires a special preparation in the early stages than the Apricot, it is better for the operator to select young maiden trees, and bring them to the fruit-bearing state himself, either planting them in any little vacant spaces against the walls, or, if not, in a sheltered place in an open quarter, and train them to stakes espalier fashion. In selecting the maiden trees see that the stock is clean and free-growing, and especially that it is sound and healthy at the point of junction between the stock and the maiden shoot, as premature decay, or an unnatural enlargement at that point, very often results from inattention to this apparently very trivial question.

Redleaf. JOHN COX.

TAGETES SIGNATA PUMILA.

I HAVE on more than one occasion recommended this dwarf Marigold to the notice of my friends as a bedder. This season, although so wet and windy,

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especially the latter part, the Tagetes has withstood the drip, and looks admirable when all its associates are on the wane. As a yellow bedding annual it is yet without its equal. Its habit is good. It grows freely even in poor soils, and blooms until frost puts an end to its existence; and all we require to make it perfect is a neat double flower. Then, indeed, we shall have the best annual of the day.

Wrotham Park, Barnet. JOHN EDLINGTON.

THE SPRING, SUMMER, AND AUTUMN OF 1866.

THE year 1866 will be long remembered for the vicissitudes of the weather and the injuries done to the cereal crops, fruits, and bedding plants by the continual rain in August and September.

The severe frosts in May did much injury to the crops of Plums, Cherries, Pears, and Apples, both on walls and standards, and the only situations in which they escaped were those where the trees were well sheltered or protected. June was a very favourable month, with plenty of moisture and in the last week hot forcing weather. July was likewise a fine month, for although breezy, cold, and wet at the beginning, an almost tropical heat prevailed from the 10th to the 27th, which forced on the growing crops wonderfully; but very heavy rains fell when the month ended. August and September were characterised by rain falling nearly every day, with some strong breezy periods at intervals. The following was the fall of rain here for the above months:—June, 3.40 inches; July, 3.04 inches; August, 3.24 inches; September, 3.83 inches. Total, 13.51 inches, or about 5½ inches above the average. It was not, however, the great amount of rain, but the daily soaking in August and September and the want of sun that did so much injury. I have seen 6 inches of rain fall in August in five or six days, and not do so much injury as the smaller amount in this year.

The following observations on the effects of the season, as regards the fruit crops and bedding plants at this place, may be of some interest to the readers of the FLORIST AND POMOLOGIST.

As regards Strawberries, Currants, Raspberries, and Gooseberries, the crops were abundant and of good quality. Pears and Plums on south walls failed; but on east and west aspects such varieties as Winter Nelis, Marie Louise, Beurré d'Amanlis, Beurré Superfin, Zephirin Grégoire, Forelle, and Surpasse Crasanne, bore good crops. Apricots on a wall temporarily covered with glass lights were an average crop; but all that were not effectually protected failed. Peaches and Nectarines on the open walls likewise failed, for last autumn the trees were covered with aphides, and all the leaves dropped before the flower-buds were perfected or the wood well ripened. In a glass-cased wall, 800 feet long, the crops of Peaches, Nectarines, Plums, and Cherries, were abundant; but in flavour the Peaches and Nectarines were not so good as usual, the only exceptions being the Noblesse and Malta, a most delicious little Peach, and amongst Nectarines the Downton, Orange, and Elruge. The new Victoria Nectarine did not ripen nor colour well, and being allied to the Stanwick, it may require a warm summer to show its true character. A row of three hundred varieties of Pears, Plums, and Cherries in pots were fruited in this structure, and bore excellent crops, especially the Plums and Cherries. Amongst dessert Apples on standards, the Margil, Cox's Orange Pippin, Early Harvest, Summer Golden Pippin, and Sturmer Pippin bore the best crops; and the best kitchen Apples were the Keswick and Manx Codlins, New Hawthornden, Lord Suffield, Alfriston, and Northern Greening.

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As to the bedding plants, they suffered so much from the daily rains, that by the middle of September the effect of the Scarlet Geraniums and yellow Calceolarias was gone. That grand old late bedding Calceolaria the lemon-coloured Amplexicaulis stood the rain better than any, and where used here the beds have been fine up to the present time. In a long range of seventy circular match beds, Ageratum mexicanum, edged with Tagetes signata pumila, has been very gay, and helped to brighten up all the other beds during the wet weather. The Tagetes requires careful selection from seed, as there is a tall variety, which spoils the dwarf sort in beds or edgings. Viola cornuta is another great acquisition, on account of its peculiar tint of colour and its standing wet weather so well. It is likely to produce different shades of colour from seeds, as I had a batch of seedlings given me by a friend in June last, and one plant I have marked for propagation, the flower being nearly of as deep a blue as the Cliveden Blue Pansy. Amongst the new Verbenas, Thomson's Crimson King possesses an excellent habit, and stands the rain and sun well. A dwarf crimson bedding Calceolaria, named Sang's Ambassador, is likewise a capital variety for small beds or ribbons, and seems to stand the weather well.

For fine effect in September and October I can recommend the following combination of colours for large beds—namely, the centre of Crystal Palace Dahlia, then a broad mass of purple Zelinda Dahlia, next a row of Amplexicaulis Calceolaria, and a broad edging of Cineraria maritima. Four very large circular beds, planted here with the above plants, have been very good all through September, and are now at their best.

In wet and unpropitious summers and autumns the fine-foliaged bedding plants will always help to keep up the display in flower gardens to the last. This wet autumn the too-hastily condemned Iresine has quite redeemed its character. With me the Coleus and Amaranthus eclipse it in summer; but now they are going out, and the Iresine seems to become finer and brighter in colour every day. In warm, dry summers the Iresine requires plenty of water and a rich soil, and when it is properly managed it will be found a great acquisition.

One of my best beds of ornamental-foliaged plants this season was planted thus:—Purple Orach and variegated Coltsfoot, plant for plant, with an edging of Golden Fleece Geranium. A few plants of Mangles' Variegated Geranium were mixed with the Coltsfoot. The Orach has to be frequently stopped to keep it to the desired height. To any one who would wish to try this combination next summer, I can guarantee a new sensation in hardy fine-foliaged bedding plants.

Welbeck Gardens. WILLIAM TILLERY.

POTATOES.

I HEAR great complaints about the Potato disease. I planted very early, and, up to this time, my man says he has not dug up forty bad tubers. He further says, according to his experience, that round Potatoes do not take the disease so much as Kidneys, and that it is useless to dig them up before they are ripe with the view of escape. Some years ago he dug up his Silver-skins early; but though no trace of disease could be seen, they all rotted within a month. He also says that he met Mr. Farquharson's gardener at Gunville a few days ago, and he told him, out of three sacks dug up early this year, and without any appearance of disease, two sacks had rotted. I never dig before the Potatoes are ripe, because it spoils such as escape the disease. They

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become close and waxy. It is best to let them rot before storing them away. Those intended for seed I allow to lie on the ground till they become green. I find it best not to cut Kidney Potatoes at all for seed, but to give them more room in proportion to their size. Kidney Potatoes, especially Walnut-leaved ones, should be suffered to sprout the length of a barleycorn before planting, and they should not be covered deeply. If these two things are not attended to, some sorts, such as the Birmingham Prizetaker, will not come up regularly.

I have a splendid crop of Potatoes of all kinds. I have some capital sorts, and hardly know which to give up, though I see no use in having so many; they lead to confusion.

These I have used already, and they are superexcellent—viz., Royal Ashleaf, Dalmahoys, Red Ashleaf, Yorkshire Hero, an unnamed Yorkshire seedling, Glory of Yorkshire, and Almond's Seedling. The last four were kindly sent to me by Mr. Taylor, of Fencote, Bedale, Yorkshire. The unnamed seedling I am eating now (October 7th), and it is equal to the old Ashleaf. The Yorkshire Hero I can strongly and universally recommend. They are 4*s*. a-bushel. I have, besides the above, the Scotch Dons, Red Robins, Salmon Kidneys, and Old Grammars. The last two are the latest, and capital keepers. I have heavy crops of both sorts. The last is a large, deep-eyed, round Potato; the Salmon Kidneys need no comment. They are equal to anything.

Out of the above lot, your readers will do well to select the Royal Ashleaf, Dalmahoy, Yorkshire Hero, Red Robin (good till Christmas), Salmon Kidney, and Old Grammars. For large families I recommend highly the Scotch Dons. The Old Grammars are in some places called Rough Reds. I once took up 12 lbs. of tubers from one plant, and sent them to the Blandford Exhibition. The Scotch Dons I bought of Lord Portman's steward.

With regard to sorts taking the disease, I see but little difference. Plant first early sorts; this is your best chance. It is curious that whilst all the Potatoes this spring in the neighbourhood were cut to the earth and blackened by frost, my Potatoes, some of which were a foot high, were not even singed. I am still as much puzzled as ever by the Potato disease. Every theory I have formed has been knocked over. I am just going (October 7th) to fork up my crops.

Okeford Fitzpaine. W. F. Radclyffe.

TROPÆOLUMS.

These constitute a most useful tribe of bedding plants: I allude to the dwarf varieties. Their growth is close and compact, they bloom very freely, and are easily propagated and preserved. King of Tom Thumbs has proved a great acquisition to this useful class, as the flowers are freely produced, and of an intense dark scarlet; the foliage, also, being of a very dark green, is a pleasing contrast to the brilliancy of the flowers. Elegans is so well known as to need no description. It has gained a wide notoriety from being so largely employed at the Crystal Palace. The habit is very dwarf, and it is a free and continuous bloomer. Eclipse is of the same habit as Elegans, but is of an intense scarlet colour, and has a telling effect in a mass, having a vividness not possessed by its more sober colleague Elegans. Garibaldi is also a good bedder. It is of a dark orange scarlet colour, and blooms very freely. Meteor produces a profusion of rich dark crimson flowers, and is of good habit. The old Cattell's Crimson, Cattell's Scarlet, Scarlet Tom Thumb, and the Yellow Tom Thumb, are also very useful indeed, but the last will never make a good, much less a sufficient, substitute for the Yellow Calceolaria. I saw growing

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at the Royal Nurseries, Slough, this summer, a variety somewhat more compact in habit than Scarlet Tom Thumb, but of a soft orange scarlet colour, and blooming with a most surprising profusion. It appears to be quite distinct from anything in cultivation, and will be highly acceptable for ribbon-borders.

Of varieties for basket and trellis work, I may instance Brilliant, a strong-growing, deep scarlet; Atrococcineum, known also as Splendens, very free-blooming, and having plenty of small, deep scarlet flowers; and Ball of Fire, very bright scarlet, a free bloomer, and a good climber.

E. W.

DIANTHUS HEDDEWIGII.

In the north of Ireland we found this Pink succeed admirably, notwithstanding the almost perpetual dripping to which it was subject: rain and wind seemed to affect it but little. We have also proved it here this season to be equally satisfactory. This and Tagetes signata pumila are now doing better than anything in the garden.

The main point to be attended to in the cultivation of this beautiful Dianthus is to sow early and secure strong plants. Sow, say in February, in gentle heat, and as soon as the seedlings can be handled prick them out in boxes and harden off, growing them on in a cool frame until bedding-out time. With this treatment they will commence blooming at once, and continue to do so till frost. The blooms are admirably adapted for bouquet and vase purposes.

Wrotham Park. John Edlington.

SELECT GOOSEBERRIES.

A Correspondent, "W. R.," requests a list of the best Gooseberries, "not the huge Crabs the Lancashire folks call Gooseberries," but the best for flavour, together with a short description of each. To meet his request we extract from the third edition of Dr. Hogg's "Fruit Manual" the descriptions of the following varieties, which may be considered the best of each colour:—

RED.

Companion (Hopley).—Fruit of medium length, chiefly two-veined, a little flat-sided towards the stalk, with plump shoulders, and nicely rounded towards the nose. Skin thin, and very hairy, bright light red. Flavour first-rate. Weight in 1852, 31 dwt. 11 gr. An early variety.

A very handsome early variety, suitable either for cropping or exhibition purposes. Makes a fine spreading bush, and bears freely.

Ironmonger (*Hairy Black*).—Small and roundish. Skin red, and hairy. A first-rate variety, of excellent flavour, but inferior to Red Champagne, which is also known under this name chiefly in Scotland, and from which it is distinguished in having rounder and darker red fruit, and a spreading bush—that of the Red Champagne being erect; leaves downy.

Keens' Seedling (*Keens' Seedling Warrington*).—Medium sized, oblong. Skin brownish red, hairy. Of first-rate quality. Bush pendulous; a great bearer, and earlier than Red Warrington.

Miss Bold (*Pigeon's Egg*).—Medium sized, roundish. Skin red, and downy. Of first-rate quality, and early; it somewhat resembles Red Walnut, but is better. Bush spreading.

Raspberry (*Old Preserver; Nutmeg*).—Fruit small, roundish-oblong. Skin thick, dark red, and hairy. Richly flavoured and sweet. Ripens early. Bush spreading, and a good bearer.

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Red Champagne (*Dr. Davies' Upright; Countess of Errol; Ironmonger*, in Scotland).—Small and roundish-oblong, sometimes tapering towards the stalk. Skin rather thick, light red, and hairy. Flavour very rich, vinous, and sweet. Bush very erect, and a good bearer.

Red Oval.—Large and oval. Skin red, and hairy. Of first-rate quality. Bush spreading.

Red Warrington (*Aston; Aston Seedling*; *Volunteer*).—Above medium size, roundish-oblong. Skin red, and hairy. A first-rate late variety, and highly esteemed for preserving. Bush pendulous.

Rough Red (*Little Red Hairy; Old Scotch Red; Thick-skinned Red*).—Small and round. Skin red, and hairy. A first-rate variety, of excellent flavour, and highly esteemed for preserving. Bush spreading.

Small Rough Red (*Small Dark Rough Red*).—Small and round. Skin red, and hairy. Of first-rate quality, and early. Bush spreading, and the leaves pubescent.

Speedwell (Poulson).—Fruit plump, of medium length. Skin very hairy, bright light red. Flavour first-rate. In 1864, it weighed 29 dwt. 4 gr. This is an early variety. The bush is large, and makes vigorous erect wood. An excellent bearer.

Turkey Red (*Smooth Red*).—Small and obovate. Skin smooth, and red. Of first-rate flavour. Bush spreading.

YELLOW.

Broom Girl (Hampson).—Fruit plump, square, and shouldered, from 12 to 15 eighths long, and 5 inches to 5¾ in circumference, with a very long stalk. Skin thin and hairy, dark yellow, of an olive shade. Flavour first-rate. Ripens early. In 1852 it weighed 28 dwt. 12 gr.

Bush large, makes strong upright wood, and bears freely. An excellent old variety.

Candidate (Crompton).—Fruit very long; the two-veined ones tapering towards the stalk; the three-veined ones rounded and better formed. Skin smooth, dark muddy green, shaded with yellow. Flavour good, but not first-class. In 1864 weighed 25 dwt.

Makes pendulous wood, and forms a large spreading bush.

Early Sulphur (*Golden Ball; Golden Bull; Moss's Seedling*).—Medium sized, roundish oblong. Skin yellow, and hairy. Of second-rate quality. Bush erect, very early, and a great bearer; leaves downy.

Gipsy Queen (Leicester).—Fruit from 12 to 14 eighths in length, and 4½ to 5 inches in circumference. Skin smooth and thin, pale yellow, blended with white. Flesh delicate and richly flavoured. In 1862 it weighed 22 dwt. 11 gr.

Bush medium sized, bears freely, and makes long, slender wood. It is an early variety.

Glory of Ratcliff (Allen).—Medium sized, oblong. Skin thick, quite smooth, and light green. Of excellent flavour, and sweet. Bush spreading and somewhat pendulous, and a good bearer.

Leader (Pigott).—Fruit of medium length, square shoulders; the seed veins a little sunk towards the stalk. Skin thin, smooth, dull greenish yellow, covered with a greyish down. Ripens early, and has a very soft appearance. Flavour very rich, and first-rate. A good old standard variety. In 1843 weighed 28 dwt. 14 gr., and has many times been the heaviest yellow of the season. Bush luxuriant, and an excellent bearer.

Moreton Hero (Pigott).—Fruit oval, from 12 to 15 eighths in length,

and 4½ to 5 inches in circumference. Skin smooth or downy, thin, pale yellow. Flesh very richly flavoured. In 1852 it weighed 26 dwt. 6 gr.

Bears freely, and makes a fine bush.

Perfection (Gregory).—Large and roundish. Skin green, and downy. A first-rate variety, and late. Bush pendulous.

Rumbullion (*Yellow Globe; Round Yellow*).—Small and roundish. Skin pale yellow, and downy. Flavour of second-rate quality. Bush erect, and a great bearer; and the fruit much grown for bottling.

Yellow Ball.—Medium sized, roundish. Skin yellow, and smooth. Flavour of first-rate quality. Bush erect.

Yellow Champagne (*Hairy Amber*).—Small and roundish. Skin yellow, and hairy. Of first-rate excellence. Bush erect.

GREEN.

Beeston Castle (Nicholls).—Fruit well formed. Berry rather oblong, and a little taper towards the stalk; from 12 to 14 eighths in length, and 4½ to 5 inches in circumference. Skin smooth, bright dark green. In 1852, the raiser weighed it 26 dwt. 12 gr.

Bush large, with strong erect prickly wood, and an uncertain cropper.

General Markham (Dennis).—A good-sized handsome berry, from 13 to 15 eighths of an inch long, and from 4¼ to 4¾ inches in circumference. Skin smooth, dark bright green, with light-coloured veins; a very handsome berry of good flavour. In 1854 it weighed 23 dwt. 6 gr.

A large bush which bears freely, and makes vigorous wood, with large leaves, which have a woolly appearance.

Green Gascoigne (*Early Green; Early Green Hairy*).—Small and round. Skin thin, dark green, and hairy. Very early, and sweet. Bush very erect, and an excellent bearer.

Green Overall (Forster).—Fruit very handsome, round, evenly formed. of medium length. Skin thin, smooth, deep green, covered with a grey down or bloom, similar to that on the Peach. Flavour delicious—first-rate. In 1852 it weighed 27 dwt. 6 gr.

Bush spreading; bears freely. An early variety.

Green Walnut (*Belmont Green; Smooth Green; Nonpareil*).—Fruit medium sized, obovate. Skin very thin, dark green, and smooth. An early variety, of excellent flavour. Bush with long-spreading shoots; leaves close to the branches; and a great bearer.

Heart of Oak (Massey).—Large and oblong, tapering to the stalk. Skin thin, green, with yellowish veins. Rich and excellent. Bush pendulous, and an abundant bearer.

Hebburn Prolific.—Medium sized, roundish. Skin rather thick, dull green, and hairy. Very rich and sweet. Bush erect, with broad, thick leaves, and an abundant bearer.

Keepsake (Banks).—Fruit of medium length, a little tapered towards the stalk; nose plump and shoulders square. Skin occasionally a little hairy. Flavour delicious. In 1841 it weighed 23 dwt. 4 gr.

The bush is very large, and an excellent bearer. The fruit soon gets large, and ripens early.

Lofty (Oldfield).—Fruit long, from 11 to 14 eighths long, and 4¾ to 5¼ inches in circumference. Skin smooth, or occasionally a little hairy, very thin, dark green. Flesh tender, very rich and delicious. In 1855 it weighed 23 dwt. 15 gr.

Bush medium sized, and bears freely.

Lord Eldon (Leicester).—Fruit round, from 12 to 14 eighths in length,

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and 4½ to 5 inches in circumference. Skin thin and smooth, dark green. Flesh tender, sweet, and very rich. Ripens early. In 1858 it weighed 22 dwt. 20 gr.

The bush is medium sized, bears freely, and makes slender, straight wood.

Model (Oldfield).—Fruit tapering slightly, from 12 to 14 eighths in length, and 4¼ to 5 inches in circumference, with long slender stalk, which is winged at the joint. Skin hairy, dull pale green. Flavour excellent. A large variety, but very tender in spring, and generally a shy cropper.

Bush spreading and large; makes long vigorous wood.

Pitmaston Green Gage.—Small and obovate. Skin green, and smooth. A first-rate variety, very sugary, and will hang on the bush till it becomes shrivelled. Bush erect.

Random Green (Boots).—Fruit plump and well-formed, from 12 to 14 eighths long, and 4½ to 5⅛ inches in circumference. Skin smooth and thin, dark bright green, with light-coloured veins. Flesh tender, and of excellent flavour. In 1852 it weighed 25 dwt. 15 gr. A great bearer.

WHITE.

Bright Venus (Taylor).—Medium sized, obovate. Skin slightly hairy, white, and covered with a bloom when it hangs long. Sugary, rich, and excellent, and hangs till it shrivels. Bush rather erect, and a good bearer.

Crystal.—Small and roundish. Skin thick, smooth, or very slightly downy, and white. Of good flavour, and chiefly valuable for coming in late. Bush spreading, and rather pendulous; leaves not hairy above.

Eagle (Cooke).—Fruit long, tapering slightly towards the stalk, which is long and fine. Skin smooth, greenish white. Flavour good. In 1830 weighed 37 dwt. 12 gr.

Bush large and spreading; makes long slender wood, and bears well. A good old variety, now surpassed by newer kinds for exhibition.

Early White.—Medium sized, roundish oblong. Skin thin, transparent, yellowish white, and slightly downy. Very sweet, good, and early. A first-rate variety. Bush spreading and erect; an excellent bearer.

Hedgehog.—Medium sized, roundish. Skin thin, white, and hairy. A richly-flavoured variety. Bush erect; the shoots thickly set with small bristly spines. This name is also applied to Glenton Green in Scotland.

Jenny Jones (Leicester).—Fruit long, berry from 13 to 15 eighths in length, and 4¼ to 4¾ inches in circumference. Skin smooth, thin, greenish white. Flesh tender and of excellent flavour. In 1860 weighed 22 dwt. 1 gr.

Bush spreading, and a moderate bearer.

King of Trumps (Lees).—Fruit plump and well-formed; of medium length. Rather flat-sided towards the stalk, and with broad shoulders. Skin a little hairy, dull greenish white. Flavour good. In 1862 weighed 26 dwt. 15 gr.

Bush makes long slender wood, and is a free bearer.

Lady Leicester (Bell).—Fruit plump, of medium length; the seed veins a little sunk; shoulders broad, and a little raised. Skin hairy, greyish white, with a light shade of green from its green veins. In 1852 weighed 30 dwt. 4 gr.

The bush makes wood of a medium strength which turns a little from each bud, and bears freely. An early variety.

Mayor of Oldham.—Fruit round, from 12 to 13 eighths in length, and 4¼ to 4½ inches in circumference. Skin smooth, very thin, dull greenish white. Flesh tender, and of exquisite flavour.

Bears freely, and makes a fine bush.

Patience (Brown).—Fruit long, from 13 to 15 eighths in length, and

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$4\frac{1}{8}$ to $4\frac{5}{8}$ inches in circumference. Skin smooth, thin, greenish, speckled white. Flesh tender, and very fine flavour. In 1852 it weighed 23 dwt. 17 gr.

Bears freely, and makes a fine bush.

Snowball (Adams).—Medium sized, roundish. Skin white, and hairy. Of first-rate flavour. Bush pendulous.

Tally Ho (Riley).—Fruit long oval. Skin hairy, greenish white. Flavour moderate. In 1852, weighed 26 dwt. 18 gr.

Makes strongly prickly wood. A good bearer, and forms a large bush.

White Champagne.—Small and roundish oblong. Skin white, and hairy. Flavour of first-rate quality. Bush erect; leaves pubescent.

Whitesmith (Woodward), (*Whitesmith; Sir Sidney Smith; Hall's Seedling; Lancashire Lass; Grundy's Lady Lilford*).—Large, roundish-oblong. Skin white, and downy. Flavour of first-rate excellence. Bush erect, and a good bearer.

SPRING DECORATION.

I have just commenced bedding-out for spring. My beds are never allowed to be idle, for, no sooner are they cleared of the summer decorative material, than they are filled with something which shall begin to bloom when the first call of the cuckoo is heard, and that will aid in rendering mother earth more lovely when the nightingale pours forth his song. Surely the spring is the season of flowers; it is then that Nature, left to herself, assumes her loveliest garb; Daisies, Primroses, Daffodils, and Buttercups smile a welcome to returning spring; the flowering trees are then at their gayest, the birds sing sweetest, the air is freshest, and all around is beautiful. Why, then, in the garden, should the flower-beds expose but a bare surface of brown earth? And do they not strike the beholder as being sadly out of place when all around is so cheerful and gay? An apologist for this state of things in spring will soon start up and say, Wait a little while, just a month or two, and then all these beds will be as full of beauty as they are devoid of it. Granted; but why not have them as gay now as then? why be content with a season of bloom that continues only a few months, when, with a little trouble and foresight, you may extend that season nearly two months longer? But with what shall it be done? Well, with almost anything that is hardy, whether annual, biennial, or perennial, that is dwarf in habit, will bloom early, and is easy of propagation.

A lovely dwarf annual which I am now using for the first time for this purpose is the Limnanthes Douglasii, with a cup-shaped flower like the Nemophila, colour white and orange, height 6 inches. Another especial favourite is the Saponaria calabrica multiflora, rosy pink, height 8 inches; and it will produce one of the most elegant masses of bloom which it is possible to conceive. The great endurance of this annual is very noticeable. I sowed a batch of annuals in the spring, on a warm border, in order to obtain seed for autumn-sowing, the Saponaria being among the rest; and although the others bloomed and seeded in due course, and have grown and are now being planted out, the Saponaria still continues to be one mass of bloom, seeming to defy the rain, which only had the effect of making it look brighter than ever. These are only two out of many annuals; but among those old-fashioned ones which everybody has grown at some time or other, almost any shade of colour can be obtained to assist in making a grand display in the spring.

Whatever is to be done in order to produce such a result, no time should be lost in taking active measures. I am filling up one lot of beds with Silene, Alyssum saxatile, Cheiranthus Marshalli, Myosotis, Nemophila, Virginian Stock, and Perennial Candytuft and Cerastium, both of the purest white; another

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batch with Eschscholtzia, Collinsia bicolor, Candytuft, Nemophila, Limnanthes Douglasii, and Saponaria; then in other beds and borders I shall have Pansies of various colours, Polyanthus, double Primroses, variegated Arabis, Stachys lanata, Saxifraga granulata, and Phlox verna. Surely it will be admitted that with such a variety of material it is as possible to make one's garden look as cheerful in the spring as at any period of the year.

The very late frosts which we had last spring should serve as a warning against bedding-out tender plants early; even here, in the sunny south, some of my neighbours were compelled to take up the plants which they had just bedded out, so much were they injured by the frost, whilst I had no necessity to turn out a plant till after my return from the great International Horticultural Exhibition last May. To see spring flower gardening in all its beauty and perfection, go to Cliveden in May. There the visitor will find a very paradise of spring flowers, the various colours skilfully blended by the master hand of Mr. Fleming, the chief pioneer in spring flower gardening; there, after passing along umbrageous walks and through woods, you suddenly come out upon the grand terrace, obtain a view of magnificent scenery and the Thames in the distance; whilst in the foreground of the picture is the famous flower garden, a mass of soft but varied colouring, produced by the use of hardy plants.

As a last word, I would say to all who may wish to prepare for a rich display in spring: Now is the time.

A. D.

RIBSTON HALL, YORKSHIRE.

The Seat of Joseph Dent, Esq.

This beautiful place is situated on the banks of the river Nidd, and is distant about three miles from Knaresborough, and four from Wetherby. There are two approaches—one from the village of Ribston on the Knaresborough and Wetherby road, which passes over the Nidd, the other from Walshford on the Wetherby and Boroughbridge road; they both unite within a few hundred yards of the north side of the mansion. The park, of which the surface is flat, is extensive, and contains some very fine specimens of trees, such as Oaks, Elms, Ash, Walnuts, Crabs, Thorns, &c. Near a pond close to the kitchen garden there is a very fine specimen of the Oriental Plane. The girth of the trunk at 3 feet from the ground is 15 feet 5 inches, and the diameter of the space covered by the branches is 100 feet; these dimensions will give some idea of its size. There is also a fine specimen of the common Pear (Pyrus communis), in the park. It is 50 feet high, and the trunk is 7 feet 8 inches in circumference. It has this season a heavy crop of its small acrid fruit.

In the park, about 300 yards from the Plane tree, once stood the original Ribston Pippin tree. This was raised from pips, sent home from Rouen in 1709 by Sir Harry Goodrick, Bart. The trunk of the original tree was blown down and removed many years ago; but a portion of it may now be seen outside the gardener's house, where it is taken great care of by Mr. Jones, the gardener. A sucker from the original tree now occupies the place of the latter. It does not grow well; indeed, owing to some of the branches dying off annually, it is now much less in size than when I first saw it some seventeen years ago. The branches have died off very much since the frost of December, 1860. It throws up suckers freely, so that should the present tree be lost, one of them would soon make a nice tree with attention.

The kitchen garden is not far from the site of the original Ribston Apple tree. It is of good size, and every inch of the ground is made the most of.

There are two good ranges of glass: the back range consists of three vineries and a Peach-house. Two of the vineries are large houses, being lofty and wide. There are some good specimens of stove plants and Ferns grown in these houses. Ribston has long been famous for its Grapes and Pines, and the crops now yearly obtained maintain its high character. Here have been grown some of the finest Muscat Grapes which I have ever seen. One of the large vineries Mr. Jones fresh planted about three years since, making an entirely new border, principally of turves. The sorts planted are Black Hamburgh, Muscat Hamburgh, Muscat of Alexandria, and Trebbiano. They are splendid Vines for the time they have been planted. The Muscat Hamburghs are on their own roots, and growing in an outside border, and certainly no Vines could possibly have done better than they have. They are bearing a heavy crop of magnificent fruit this season; the bunches large, and the berries everything that could be desired.

The front or second range of glass consists of three Pine-stoves and a vinery. In the latter were some good Muscat bunches at the time of my recent visit. Two of the Pine-stoves are filled with fruiting plants, all planted out, the bottom heat being supplied by hot-water pipes. The succession plants are grown in pots. Nothing can exceed the health and vigour of these plants. Many of the fruiting plants had splendid fruit swelling when I saw them. A few years ago the old pipes and boilers that heated these ranges of glass, being out of repair, were all taken away, and new pipes, boilers, stop-cock, &c., fixed in their place, so that the heating is thoroughly efficient. I may here remark, that all the houses and glass about the place are in the best possible repair, the woodwork being kept well painted. At the back of the garden there is a large house for wintering bedding plants, and a good large Cucumber-pit, besides numerous pits and frames for the growth of Melons and for other purposes, also the potting-sheds; and behind all Mr. Jones grows his Sea-kale, so that all litter and dirt may be kept out of the garden.

Fruit trees of all kinds do well here. Peaches on the open wall were a good crop this season, though in general scarce in this part of the country. Pears and Apples are a heavy crop. There is a number of nice dwarf Apple trees around the borders. I could never correctly ascertain what stock they are worked on. The Hawthornden grows larger here than I ever saw it elsewhere. Emperor Alexander and King of the Pippins also grow very large. Altogether there is a good assortment of Apples and Pears.

Passing through a door on the south of the kitchen garden we enter the conservatory—a long lean-to building. It used formerly to be in three compartments; but latterly Mr. Jones has had the partitions removed, which has greatly improved its appearance. This is kept gay all the year round with Cinerarias, Primulas, Camellias, Roses, Geraniums, &c. Mr. Jones has planted out Fuchsias and trained them part of the way up the rafters. The effect of these from either end is very beautiful; they are masses of bloom throughout the summer. In winter they are pruned in well.

Leaving the conservatory we enter the pleasure grounds. These are well laid out, and contain a rich collection of trees and shrubs. The collection of Conifers is extensive and interesting; but as it would occupy too much space to notice every specimen individually, I will merely mention a few of the principal ones in passing, and subjoin a list of all the most interesting. Of Yews there are numerous grand specimens all over the grounds. The character and habit of some are very beautiful. Ribston suffered much from the frost of 1860. Among the many fine things that were killed were some noble specimens of Cedrus deodara—one of them was a very grand object; but a person not knowing Ribston previous to that time, visiting it now, would not

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imagine that a single shrub had been killed, so rapidly have the common Laurels and other shrubs recovered, and so well have the large Yews and other trees done that were removed to fill up gaps. A number of Conifers were planted in the spring of 1861. These have succeeded remarkably well; indeed one portion of the ground appears overcrowded with fine promising young specimens. Near the conservatory there is a fine specimen of Pinus excelsa, 30 feet high; the girth of the trunk is 3 feet 7 inches, and the branches extend a great length over to the grass. This stood the brunt of 1860, as did also a fine plant of Picea pinsapo a little way off. It is 22 feet high, and its circumference at 3 feet from the ground is 2 feet. It is a beautifully formed specimen, with branches feathered to the grass. There are some more very fine young trees of P. pinsapo, but not quite so high. Taxodium sempervirens stood the frost of 1860. It is 23 feet high, and measures 1 foot 8 inches in circumference. The highest plant of Wellingtonia gigantea is 18 feet 3 inches. This was planted we believe in the spring of 1861, and was then only a small, poor plant. It is now a very handsome specimen. There is a great number of plants of Berberis Darwinii in the grounds, also of B. japonica. Several attempts have been made to grow Rhododendrons, but without success, the limestone rock being too near the surface.

The mansion is situated near the river Nidd, and at the east end of it there is a very ancient chapel, and within a few yards of this there is a very old Mulberry tree. The terrace garden is at the south front of the mansion, and is in summer well filled with the usual bedding plants. In spring there is a fine display of bulbs, particularly of Crocuses. At a short distance from the terrace there is a number of large beds, which are kept filled with perennials and annuals. Of Roses there is a good collection of the leading kinds; some grown as standards and others as dwarfs.

I may remark that the gardens and grounds at Ribston are kept in the highest possible order, and reflect the greatest credit on Mr. Jones. Mr. Dent kindly allows the gardens and grounds to be opened to the public once a-week —on Tuesdays.

List of some of the principal Conifers at Ribston:—Abies Menziesii, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 11 inches; A. Douglasii, 16 feet high, girth of trunk at 3 feet from the ground, 1 foot 2 inches; A. morinda, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; A. Mertensiana, 12 feet high; A. nigra, 22 feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; Cedrus atlantica, 21 feet high, girth of trunk at 3 feet from the ground, 2 feet 8 inches; C. deodara, 15 feet high, girth of trunk at 3 feet from the ground, 2 feet 2 inches; Chamæcyparis sphæroidea, 31 feet high, girth of trunk at 3 feet from the ground, 2 feet; Cryptomeria japonica, 15 feet high; Cupressus Lawsoniana, 13 feet high; C. Lawsoniana erecta, 9 feet high; C. cashmerensis, 12½ feet high; C. macrocarpa, 12½ feet high; Thuja Craigiana, 13 feet high; Juniperus chinensis, 14 feet high; Pinus humilis, 17 feet high; P. macrocarpa, 19 feet high, girth of trunk at 3 feet from the ground, 1 foot 5 inches; P. cembra, 20 feet high, girth of trunk at 3 feet from the ground, 1 foot 3 inches; P. Benthamiana, 11 feet high; P. tuberculata, 14 feet high, girth of trunk at 3 feet from the ground, 1 foot 4 inches; P. taurica, 9 feet high; P. excelsa, 30 feet high, girth of trunk at 3 feet from the ground, 3 feet 7 inches; P. strobus, 56 feet high, girth of trunk at 3 feet from the ground, 5 feet 9 inches; Taxodium sempervirens, 23 feet high, girth of trunk at 3 feet from the ground, 1 foot 8 inches; Thuja plicata, 11 feet high; T. gigantea, 10 feet high; Thujopsis borealis, 9½ feet high, girth of trunk at 3 feet from the ground, 1 foot 9 inches; Wellingtonia gigantea, 18 feet 3 inches high.

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With the exception of a few of the largest, all the above were planted in the spring of 1861, and have since stood the winters uninjured, so that they may be considered perfectly hardy. There is a great number of smaller plants, very promising specimens, and among them are several good plants of Picea nobilis, also a very handsome young plant of P. lasiocarpa. Altogether there are about seventy-five distinct sorts of Conifers.

M. S.

ON THE SEEDING OF CONIFERS.—No. 2.

Wellingtonia gigantea, Pinus excelsa, and Pinus Banksiana.

Wellingtonia gigantea is well known as a noble and handsome tree, both as regards shape and colour, and we can now judge what an effect it will have in the future landscape scenery of this country, particularly when judiciously placed on the sides of extensive slopes and ravines, so as to catch the morning and evening sunlight. My present intention, however, is only to allude to its cones, male catkins, and seeding, which has occurred here for the first time, and as I have not heard of its producing seeds elsewhere in England, a few facts and remarks may be of interest.

That the Wellingtonia has produced cones here and at many other places for several years is well known; but, so far as I am aware, little has been seen or said of its male catkins till within the last two years, or thereabouts. The cones with us are produced not in any particular number in a cluster, they are in twos, threes, and fives, and as many as a dozen or fifteen have been counted. The cones formed in the spring of 1865 became full grown in 1866, and the seeds were ripe by the end of August or beginning of September. All of them, however, do not arrive at maturity at the same time; but as soon as ripe, on a sunny, drying, windy day the scales of the cones open, and out fall the seeds if fully ripe, the scales closing up again at night and on damp days. The seeds are very small for such a gigantic tree; indeed but few Conifers produce smaller, but they are very numerous. The male catkins with us have hitherto been on different branches from those producing cones. They are pendulous, when fully expanded about the diameter of a grain of wheat, and equal to about three of these in length; the colour is a bright brimstone. Being full of pollen this is wafted about on dry windy days, as in the case of the Cypress and Juniper family.

Pinus excelsa.—This is a very distinct and beautiful spreading-branched conical Pine, with foliage of a shining, glaucous, bluish green. It forms a beautiful contrast with Pinus insignis, Abies Douglasii and Menziesii, Cupressus macrocarpa, Picea nobilis, Webbiana, Nordmanniana, cephalonica, grandis, amabilis, &c. No one can form an adequate idea of the beauty and distinct character of these trees without having seen them contrasted in an extensive collection of finely-grown specimens, such as we have here.

With us the cone of Pinus excelsa resembles the horn of a two-year-old heifer in shape, size, and length. It is from 10 to 12 inches long, and pendulous from the shoot of the preceding year—that is, the growth of the year is made beyond it. The seed ripens in the second year; at this time, therefore, there is two-year-old wood above the cones. These are covered with turpentine the first year, which gives them a grey colour, and they are very heavy; in the second year they are light brown. They are attached to the shoot by a stout, tough footstalk of about 2 inches in length till quite ripe, when they can be easily gathered.

Pinus Banksiana.—This species is more curious than beautiful, and would

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seldom be chosen for a small collection, it being a slow-growing, straggling, stunted, weather-beaten-looking tree; but it certainly offers a great contrast when planted amongst a collection of robust, fine-foliaged, free-growing Conifers. Its singular, small, grey, crooked cones adhere closely to the wood, and all point in one direction. It is four years from their first appearance till the seed is ripe. The seeds are very small. There is a Banksian Pine here, having on some of its branches the crops of cones produced during twenty-seven years still adhering tightly to the wood.

Bicton. JAMES BARNES.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

October 2nd.—As the year draws near to its close, and the shadows of the coming winter deepen in the autumn evenings, there appears a falling-off in the number and quality of the subjects produced at these meetings. From Mr. George Batley, of Rugby, came some seedling Zonale Pelargoniums, a designation now, unfortunately, meaning anything, as there is now such a great variety of the Zonale kinds—bicolors, tricolors, quadripartites, and subdivisions of these; in fact, there is a great and urgent necessity for some concise and yet intelligible classification of these Pelargoniums. Mr. Batley's varieties were Salmon King, with salmon flowers tinted and pencilled with carmine, to which a second-class certificate was awarded; Washington, bright scarlet, small trusses, but very free; Orange Perfection, orange scarlet, fine trusses, and very free, of the Nosegay section; and Queen of Beauties, pale rose, and very pretty. A Verbena, named Tom Brown, also came from Mr. Batley. It was of a rosy purple colour with a large white eye, but not in good condition. Mr. George Rawlings had six blooms of his seedling dark crimson Dahlia, John Sladden, which appears to be very constant. Mr. Bull had Lobelia Ruby, a variety of the Cardinalis section, having rich bright rosy crimson flowers, shaded with violet—this was awarded a first-class certificate; and from Messrs. E. G. Henderson & Son, came a number of seedling plants of Tricolor Pelargoniums, to show the process of developing their variegated foliage. Thus, on some of these plants would be seen two or three leaves that had broken off into variegation; on others fully one-half of the plant had done so. One variety, named Edwina Fitzpatrick, had been selected for the Floral Committee; it was very much in the way of Mrs. Pollock, but was considered to be inferior to it. The same firm also had Phlox Drummondi Louise Grelle, rosy carmine streaks with a white edging, an improved General Radetzky, the colours being much brighter; some flowers of Pompone Dahlias, and some blooms of the autumn-flowering Crocuses—speciosus, mottled violet, and nudiflorus, deep lilac. Mr. Tillery, of Welbeck, Mr. Wrigley, and Mr. Stevens, had seedling Gladioli, but not in good condition. From Messrs. E. P. Francis & Co., of Hertford, came sprigs of Jasminum officinale aureum, a golden variegated form of the common white Jasmine, said to be from seed, but which does not appear to be so very uncommon according to statements made to the Committee. The gem of this meeting was a specimen of the rare and magnificent Cattleya Dowiana, from James Bateman, Esq., having two large flowers with pale yellow sepals and petals, and a large-veined claret-coloured lip.

Before the Fruit Committee, the "War of the Onions" waged furiously. From the gardens of the Horticultural Society came samples of Trebons, Nuneham Park, White Spanish, and Santa Anna; from Mr. Drewitt, the Nuneham Park; from Mr. Whiting, wonderful examples of White Spanish, large, handsome, and very heavy; from Mr. Dean, good examples of Danvers' Yellow; from Cutbush & Son, Nuneham Park; and from Mr. G. Scrymger, of Reading,

Nuneham Park and Reading. Messrs. Veitch & Son showed examples of the white and green Broad-leaved Batavian Endive, the latter under the name of Fraser's; Digswell Prize Endive, a good stock of Green Curled; and examples of the White and Green Curled.

October 16th.—A very small meeting on this occasion. From the gardens of the Society came a large group of Zonale Pelargoniums in pots, with good heads of bloom, and very effective they were. From Mr. W. Paul came a seedling Zonale Pelargonium named Ossian, having plenty of trusses of bright scarlet flowers, and a very close dwarf habit; from Mr. Morris, of Deptford, came seedling Pelargonium Maid of Kent, a strong-growing Christine, having large trusses of deep rose-coloured flowers, with white blotch; and from C. Leach, Esq., of Clapham Park, came examples of several varieties of Nerine, one of the most showy of which was N. corusca major, colour orange scarlet, a robust-growing kind; N. rosea and N. humilis, bearing flowers of different shades of pink and rose, were also pretty.

To the Fruit Committee, from Mr. Turner of Slough, came very fine specimens of British Queen Pears and Cox's Orange Pippin Apple. Apples and Pears were also shown by Messrs. W. Paul, Veitch & Sons, Leslie, Reynolds, and from the Society's Gardens; also from the latter came Mill Hill and Dutch Hamburgh Grapes, intended for comparison with some expected from Mr. W. Hill, of Keele Hall, which, however, did not reach the Committee. Mr. Carr, gardener to P. L. Hinds, Esq., of Byfleet, sent fruit of Passiflora laurifolia, or Water Lemon; and from Mr. Jonas, of Petworth, came a dish of fine Cranberries, which make an excellent preserve.

R. D.

REMINISCENCES OF THE PINK.

THE "old florist"—just such a one as you would picture to yourself as you perused a volume of the "Horticultural Cabinet," or one of the earlier Numbers of the "FLORIST," has not yet quite died out, although the species is rapidly becoming extinct. Here and there one can be met with, scarcely known without the boundaries of his immediate sphere, and yet a great man within it, a "man of mark" at the floricultural tournaments at which he occasionally figures, and among the florists of the district in which he resides. If he excels in the cultivation of any one particular flower, what an oracle he instantly becomes!—a veritable autocrat in matters of opinion respecting his "own" flower. And when a seedling is produced for the first time at a local show, how eagerly and anxiously is his opinion sought and waited for, and this, when once announced, is generally regarded as final. A "Floral Committee" in himself, his approval is tantamount to a first-class certificate in the judgment of the exhibitor, and a flower thus distinguished by him is pretty certain to become a "hot favourite" in contests for the coveted honour of "first prize."

During a country ramble I lighted on one of these worthies in a locality, somewhat unexpectedly (to me) prolific of them. He was one of Nature's gentlemen—rough in his exterior, but at the core a kindly, generous, and true man; manly, out-spoken, and sincere; loving Nature with an unselfish regard, and his immediate floral pets with a steady enthusiasm no calamity seemed to weaken. Sitting down with him and some of his brother amateurs to spend an hour or two, I was forcibly reminded of an illustration that appeared in one of the early volumes of the "FLORIST," entitled "Florists in the Olden Time." We were just such a cosy, comfortable-looking set, but with more of younger blood infused into our circle than appears in the illustration just referred to.

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Each one had some reminiscences of his floral career to detail, and very instructive and ofttimes amusing they were. My host had been a grower of the Pink for nearly half a century, and he discoursed of flowers and events that have long passed away. No conservative was he, though; for he marched with the times, read with avidity anything bearing on the cultivation of his favourite flower, eagerly seized on any hint that he could translate into his cultivable process, and had in his collection all the leading flowers of the day. He could speak of the ancient distinctions of "purple-laced," "red-laced," "black and white," "roseleaf," and "large-leaved flowers;" of such varieties as Davy's Eclipse, of Lady Wharncliffe, of Davy's Duchess of Devonshire, Venus, and Countess of Bridgewater, Salter's Lord Nelson, Dakin's Burdett, of George the Fourth, Humphrey Cheetham, Beauty of Flora, Claudius, and other flowers that in their day and generation were the best varieties in cultivation of what old Thomas Hogg once termed "that pleasing little flower the Pink."

Perhaps in no flower have the conditions of successful cultivation so little varied during the last fifty years as in the case of the Pink. The season for planting out into the blooming-beds—September or October; the raised beds of 6 or 8 inches above the alleys "to enable the heavy rains to pass off during the winter;" the compost—yellow garden loam, sand, and well-rotted manure; the top-dressing—early in May; the time for piping—the end of June. These I learned were the rules observed at the commencement of the present century, and are acted on now.

Much of our conversation on this, to me, important occasion, had reference to the men who in their day had made Pink-growing famous, and gained a place of renown in their local annals, who are now passed away from amid their floricultural colleagues. How tenderly, and even lovingly, was the memory of that father of Pink-growing—old Thomas Hogg, touched on by these worthies! His "Treatise on the Growth and Culture of the Pink, Carnation, &c.," was prized by them as a very floricultural evangel; dear to them for the sake of its acceptable contents; dearer still as a memorial of the hero, as it were, who wrote it. Other names had their meed of praise, and sometimes a very little blame. Gratefully were Mr. Turner's great services recognised, and the patience and enterprise of Dr. Maclean, the raisers of so many of the very best modern flowers.

I asked for a list of the best twelve varieties for exhibition purposes, and was furnished with the following, being informed, however, that a very few newer flowers would be subjected to a further trial ere their merits or demerits were finally stated:—Beauty (Maclean), Clara (Maclean), Dr. Maclean (Turner), Exquisite (Turner), Invincible (Kirtland), James Hogg (Bragg), John Ball (Maclean), Marion (Turner), Mrs. Maclean (Turner), Rev. George Jeans (Turner), The Pride of Colchester (Maclean), and Tietjens (Kirtland).

The general hints that will assist in the successful cultivation of this flower were of the nature of the following:—The bed should be made in a part of the garden that is tolerably dry. The ground should be well trenched, and a soil, somewhat after the character of that already mentioned, should be prepared for the reception of the plants. Planting-out for blooming-purposes should be done late in September or early in October, as later planting will often affect the proper "lacing" of the flowers at the blooming season; and a liberal top-dressing of some well-rotted manure that has been passed through a sieve should be given at the end of April. When blooms are required for exhibition, three or four flower-stems only should be allowed to each plant, and the buds thinned out to about the same number on each plant. Water freely should dry weather set in, and the buds should be tied with a piece of matting to prevent them from bursting on plants that show a tendency to do this. The

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piping-bed should be made about 2 feet from the ground, and the pipings should be covered by hand-glasses, and when rooted and capable of being removed, should be planted out into store-beds preparatory to being placed in their blooming quarters.

Coming away from the society of these veterans and from the hearing of their pleasant recollections, back to the great metropolis, in the midst of which I write, I could not help thinking of the wonderful charm a simple flower had for these men, and how powerful an influence it exerted on them; and this was but a reflex of the larger charm and wider influence flowers have, ever had, and ever will have, for the great family of human beings. Ever present with us, in cold and in heat, they are ministrants of no common order; and he who can so develope their beauties as to deepen the charm they possess, and to widen the influence they exert, if not a lover of his species, is at least consciously, or unconsciously, a benefactor to his race.

Quo.

OUR CONTEMPORARIES.

The October Number of the Botanical Magazine has representations of the following plants:—

Cœlogyne corrugata.—Found by Dr. Wight, near Cortullam, in the Neilgherries, and believed not to have been introduced into this country before 1863, although figured several years previously. It also grows wild in Khasya. The flowers are in racemes of from three to six, with pure white sepals and petals, and a three-lobed lip, which is yellow, streaked with orange.

Cotyledon fascicularis.—A South African succulent, which is doubtless identical with the plant described by Aiton under the same name. It forms a very pale green, erect shrub, from 1 to 2 feet high, with thick fleshy leaves, 2 or 3 inches in length. The flowers are borne on stems from 10 to 20 inches in height, and are tubular, and about an inch long. Their tube is yellowish green and dull red, and the lobes of the corolla are of the same hue, margined with green.

Glyptostrobus pendulus.—A plant cultivated at Kew side by side with Taxodium distichum, was considered to be merely a variety of that species, to which it is strikingly similar; but Professor Oliver having examined the flowers this year, observed some points of difference, by which he has succeeded in referring it to the Chinese Glyptostrobus pendulus. It forms an elegant, straight-stemmed, slender tree 40 feet high, with horizontal or slightly-pendulous branches, which are deciduous in autumn.

Helipterum Cotula.—A West Australian Everlasting, seeds of which were sent from Swan River, by Mr. Drummond, to Mr. Thompson, of Ipswich. The plant grows from 6 inches to 2 feet high, and produces flower-heads half an inch to an inch across, in one variety golden yellow, and in another white, with a golden yellow eye.

Bolbophyllum reticulatum.—A beautiful-leaved Orchid, discovered by Mr. Thomas Lobb, Messrs. Veitch's collector, in Borneo. The leaves are from 3 to 5 inches in length, ovate-cordate, pale green, much reticulated with longitudinal and transverse nerves of a deeper green. The flowers are 1¼ inch in diameter, white, striped or spotted with reddish purple.

Musschia Wollastoni.—A Campanulaceous plant, introduced to Kew ten or twelve years ago from Madeira. It forms a large-leaved undershrub, from 2 to 6 feet high, with oblong lanceolate leaves from 1 to 2 feet in length, often purplish in colour, and has erect panicles, 2 feet in length, of large yellowish green flowers. It requires a cool greenhouse.

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The FLORAL MAGAZINE for September and October contains representations of the following plants:—

Ivy-leaved Pelargonium Silver Gem.—The leaves of this variety are bright green, heavily edged with white, and while young are prettily zoned with pink. The flowers are larger than in the common form and of a lilac rose, blotched in the upper petals with purplish crimson. Its chief recommendation, however, is its foliage, which renders it peculiarly well adapted for the edgings of beds and for baskets.

Rose Mrs. Ward.—A Hybrid Perpetual obtained by Mr. Ward, of Ipswich, the raiser of John Hopper, from Jules Margottin crossed with Comtesse de Chabrillant, and described as partaking of the qualities of both parents. "The outer petals have that brilliant rosy pink colour which the Countess possesses, while the centre of the flower has the colour of Jules Margottin; the petals are of great substance, thicker almost than those of any Rose with which we are acquainted. In shape also it is midway between the two, and we believe no better model for a Rose exists; the wood is stout and thorny, and the foliage large and ample, and the plant has the merit of being a good autumnal bloomer." If the good properties ascribed to this variety be verified by further experience, it must prove a first-class addition to our English Roses.

Urceolina pendula.—Described many years ago by Dean Herbert, and figured in the "Botanical Magazine" for 1864. The plant from which the plate is taken was found by Messrs. Veitch's collector, Mr. Pearce, in the woods of the Andes of Peru. It bears large umbels of drooping golden yellow flowers likened in shape to an inverted pitcher, and having the limb green edged with white.

Orchis maculata superba.—A fine variety of the well-known Spider Orchis found in Ayrshire, and which this year received a first-class certificate from the Floral Committee of the Royal Horticultural Society when exhibited by Messrs. Osborn, of the Fulham Nurseries.

Dipladenia amabilis, figured and described at page 209.

Clematis Rubella and *lanuginosa candida.*—The former was raised by Messrs. Jackman, of Woking, to whom we also owe those fine varieties Jackmanni and rubro-violacea figured in a former volume, and which were the forerunners of a new race of Clematises. *Rubella*, one of the finest of these, has been several times exhibited, and has received first-class certificates both from the Royal Horticultural and Botanic Societies. Its flowers are of a rich velvety reddish violet, and are stated to be more constant in having five or six petals than any of the other varieties. *Lanuginosa candida* is white, slightly tinged with purple towards the edges of the petals, and will prove useful for mixing with the richer-coloured varieties. It is believed to be of Continental origin. The mode of cultivation pursued by Messrs. Jackman in the case of these and other varieties is thus stated by Mr. George Jackman, jun.:—"When we put our specimen Clematises out, we plant them permanently out of pots in the open ground; in pots they will flower freely, but will not produce flowers in equal number or of so fine a quality, because the Clematis, having a fleshy root, cannot take up sufficient moisture to develope its flowers so finely as in the open ground. The soil they luxuriate mostly in is one composed of rich manured loam, and when possible fine calcareous sand. They should be pruned back in the spring, about February, leaving a quantity of good breaking buds; but there is this difference—some kinds will only flower on the old well-ripened wood of last year's growth, therefore discretion must be used. C. Standishii, Fortunei, and all the varieties of azurea grandiflora are of this character; while others, such as the hybrid seedlings of which C. Jackmanni is the type—rubro-violacea, rubella, Prince of Wales, and all the viticellas—will grow and flower quite as well and as vigorously on the spring's growth, as the other

varieties do on the older wood. After pruning, the surface should be stirred up, and some good rotten manure forked in round the roots. By giving attention to these simple rules, any person may have exuberant growth, large flowers, and brilliant colours."

Rose Mrs. John Berners.—A new Hybrid Perpetual with very compact rosy pink flowers, bright and distinct in colour. The name of the raiser is not stated.

The August and September Numbers of L'ILLUSTRATION HORTICOLE contain the following plates:—

Elais guineensis.—The Oil Palm of Western Africa, an ornamental species, which has been known for considerably more than a century. It is the tree from the fruit of which is obtained the palm oil of commerce, annually imported into this country to the value of about £1,750,000. The tree grows from 20 to 30 feet high, and has a stem from 12 to 16 inches in diameter, and naked for one or two-thirds of its height, though deeply marked with the scars resulting from the old leafstalks dropping off, and above this point it bristles with their remains, terminating in a crown of pinnate leaves from twelve to twenty in number, and varying from 10 to 15 feet in length. The species also occurs in tropical America, whither it is supposed to have been introduced, but at what date is uncertain.

Camellia Mrs. Dombrain.—Flowers large, with very small petals, closely and regularly imbricated, of a delicate rose colour, becoming paler towards the edges, and finely veined with a somewhat deeper rose. The leaves are divided by the midrib in two unequal parts.

Jacaranda digitaliflora albiflora.—A variety sent to M. Verschaffelt from Rio de Janeiro, and having white flowers with a yellow throat.

Alnus glutinosa aurea (Golden-leaved Alder).—A variety of the common Alder, in which the leaves exhibit a handsome golden variegation, and which promises to be useful for pictorial effect in groups or planted singly on a lawn. It sprung up in a seed-bed in the nurseries of Madame Vervaene & Son, at Ledeberg, and is in the hands of M. A. Verschaffelt, of Ghent.

Rhododendron Archiduc Etienne.—A hardy hybrid variety raised by M. A. Verschaffelt. The trusses, as well as the individual flowers, are large; the latter are white, densely covered in the upper petals with a multitude of small dark chestnut brown spots, which at a little distance appear as if forming one large blotch, intersected lengthwise through the middle by a white vein. The spots do not extend so far as the margin of the petals, and as they approach it they are set further apart; they also exist at the base of the lower petals.

A group of Pompone Chrysanthemums concludes the September Part.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY.—The number of persons who visited the gardens at South Kensington on the Wednesdays of September, on which days the grounds were free to the public, was 21,283; but the experiment of free admission is not likely to be repeated this year on account of the annoyance caused by disorderly boys who resorted to the gardens to play. At a joint meeting of the Floral and Fruit Committees on the 2nd of October, at which Messrs. John Veitch, Standish, Turner, Fraser, and some other leading nurserymen and exhibitors attended, the proposal of holding a four-days Exhibition in 1867, which had been mooted at the previous meeting, was discussed and approved of, provided the prize list be made sufficiently liberal to compensate for the increased risk of deterioration to the plants, involved in the longer duration of the Show, and the greater expenses entailed on the exhibitors. We may add that the project of holding a show next year at Bury St. Edmunds in connection with that of the Royal Agricultural Society has been abandoned, in consequence of the only site that could be devoted to the purpose being unsuitable.

PERPETUAL ROSES.—In the last Number of the "Revue Horticole," M. Lebas remarks that a large proportion of the Perpetual Roses after once blooming only produce a few

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flowers at intervals, and are not, therefore, constantly in flower, as some persons might suppose from their being termed "Perpetual;" and he points out the following means of obtaining from nearly all such a good second bloom: When the first bloom is not quite over, prune the Rose trees rather short, and even disleaf the parts which are retained. That being done, give a good watering so as to thoroughly moisten the soil about the roots. New shoots will soon push, and about two months afterwards they will have flower-buds at their ends. This mode of proceeding, he remarks, will, however, only prove successful as regards a second bloom in a tolerably warm climate, for in others the weather will become too cold before the buds open. In this case, though a second bloom cannot be obtained by the above proceeding, bloom can be secured at two different periods by planting the trees rather closely together, and, when they commence to flower, pruning every other one, which will have the effect of retarding the flowering of the plants so treated. In this way, after an interval of about seven weeks, say in the end of August, there will be Roses in as fine bloom as in the end of June, or beginning of July.

Dioscorea Decaisneana.—A considerable amount of controversy has been going on in the French horticultural press as to whether this is a species or merely a variety. Whichever it may be, M. Carrière records the fact that whilst nearly all the plants of Dioscorea batatas prove male, those of D. Decaisneana produce only female flowers; and he concludes that if the two were grown together seeds would probably be produced, from which new varieties might be obtained.

OBITUARY.

We regret to have to announce the death of Dr. Schechtendal, Professor of Botany and Director of the Botanic Gardens at Halle, and who was so well and so favourably known to botanists through his editorial labours in connection with the "Linnæa" and the "Botanisches Zeitung."—(*Gardeners' Chron.*)

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—The object here will be to keep up as gay an appearance as possible during the dreary months of winter. All the large specimen Clerodendrons, Allamandas, Echites, Achimenes, &c., should be removed to any spare house where a little heat is kept up, to winter. This will give room for the various plants which, having been struck last spring, and grown on through the summer, will now be in condition to bloom freely through the winter; let them be fully exposed to light. *Orchids.*—Unless any plants show indications of a new growth, the moderately cool and dry treatment must be persevered in; such, however, as are commencing to push must be potted at once and placed in more heat. Keep plants in bloom in a dry part of the house.

GREENHOUSE.

Mixed Greenhouse.—As the plants are staged for the winter, let them have a surfacing of fresh soil; give air daily, and apply fire occasionally when wet, to dry up damp, and make the air of the house healthy. But little watering will be necessary at this season, except for such plants as have been a long time without shifting; let the watering be done in the morning, so that the house may get dry before closing-up time. *Camellias and Azaleas.*—Keep cool and airy, unless early blooms are desired. A few free-blooming Azaleas may be placed in a moderately warm house, if wanted to bloom by Christmas. *Cinerarias* will now be growing very fast; fumigate if aphides are detected. This should be done with care, the foliage being very tender; burning a little tobacco two successive nights will be most effectual. Those for winter flowering will now be throwing up their blooming-spikes, and may be selected from the general stock in the pit, and placed in front of the greenhouse. Shift any part of the young stock that is filling the pots with roots. *Heaths and Epacrises.* — Properly speaking, these plants should have a house to themselves, for they neither arrange well nor yet thrive with other plants. At this season they will require abundance of light and air. Do not apply fire heat to them unless the frost is very severe, and we may say at once none will be required this month, unless by day, during a continuance of wet weather. *Pelargoniums.*—Cleanliness during the winter has much to do with the successful cultivation of the Pelargonium. The glass, stages, and every part of the house should be clean, as well as the pots and everything about them. The house should also be kept dry, and not too cold at night. Give plenty of air on other occasions, and so that cold draughts may be avoided; let the plants have plenty of room, keep them clear of dead leaves and green fly, and success will be tolerably certain.

CONSERVATORY.

As the entire stock is now in the house, air must be given on all favourable opportunities, to harden the plants well before winter. It will help to prevent mildew; and by applying a little fire on wet days at the same time, a close damp atmosphere, which is at all times injurious to the health of plants, will be avoided. Chrysanthemums should be brought in as they come into bloom, and with Epi-

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phyllums, Salvias, &c., will help to make a good display throughout the month. Violets, Mignonette, &c., are likewise indispensable.

FORCING.

Forcing-houses.—Where *Grapes* are wanted in April, the sashes should be at once put on, and the borders, if outside, covered with new warm leaves, 1 or 2 feet thick, which may be thatched, to keep them dry and from blowing about. Dry fern or stable litter will answer the same purpose; we ourselves prefer leaves. The temperature must be very mild at first—45° will be ample by night, and this heat may be kept up without fires for some time; in three weeks a little fire may be put on by night, and during wet or very cold days. As leaves can be obtained, it will be a good plan to cover the whole of the early vinery borders and thatch them; the leaves will keep them warm and dry in the winter. *Cucumbers.*—Keep up a steady bottom heat, as recommended last month; the top heat should not be much under 70°. Give air at all opportunities. Keep the Vines thin and well exposed to the light. Surface the pots or boxes occasionally, and water with liquid manure; if mildew appear, dust a little sulphur over the spots, and keep rather a drier heat for a few days; fumigate for aphides. *Pines.*—Let the fruit now ripening be fully exposed to the light, to give it colour and flavour. Very little water will be required, except to those just commencing to swell their fruit. Keep the stock to show fruit at Christmas dry and cool; the young stock grown in pits, &c., should likewise have the top moisture lessened by some means, as, if not prevented, too much damp at this season has a tendency to rot the hearts in the winter. Protect from cold by night by sufficient coverings, and let the linings, &c., be maintained, so as to allow a mean temperature of 60° to the plants. Where hot water is employed, keep up the same heat by applying fires.

KITCHEN GARDEN.

It is now too late for planting. What remains in the way of Cabbage, Lettuce, &c., will be better left till spring, unless the weather be very mild. However, there are various things required at this season. In the first place, never allow any ground to be idle; dig or trench it immediately it become vacant. Continue to hoe between late-planted crops—Cabbage, winter Lettuce, Spinach, &c.; a good dressing of soot on a wet day will do them good.

FRUIT GARDEN.

Hardy Fruit.—All kinds of wall, orchard, and bush fruits may now be planted, and the preparation of new borders proceeded with by removing all or a part of the old soil; do not work the new soil, however, when in a wet state. Let the borders be shallow and well-drained, the loam of medium texture, or rather inclined to be heavy than light, and use none or but little manure. Pruning may be commenced.

FLOWER GARDEN AND SHRUBBERY.

What remaining beds continue to make a show of bloom should be preserved; the rest should be cleared away at once to make room for Anemones, Dutch bulbs, Crocuses, &c. Continue to pot choice plants for next year. Much of the beauty of the garden early next season will depend on the care which is taken of Geraniums, standard Fuchsias, and a number of other things. When the rubbish is cleared away, well sweep the Grass, and put the walks in good trim, by frequently rolling them, for the winter. *Roses.*—If not already looked over to decide on renewals and additions, lose not a day. Do not allow one ill-grown plant to stand in a conspicuous situation.

FLORISTS' FLOWERS.

Auriculas.—Keep the plants in a northern aspect for another month at least; they should be elevated above the ground. Care must be taken not to over-water them at this season. The plants will require to be looked over frequently, for the purpose of removing all dead foliage as it appears. Auriculas are not interesting plants at this season; they must not, however, be excited into growth now; on the contrary, they should be nearly at rest. *Carnations and Picotees.*—Give plenty of air but not much water; the hardier they are kept the better. Damp must be avoided, and the plants must be kept perfectly clean. *Hollyhocks.*—Now is the best time for procuring cuttings of these from the crown of the root, for the reason that they strike more readily and make the best plants. The summer-struck cuttings will be filling the pots with roots by this time, and should be repotted. Strong early plants will winter in almost any situation, if the season is not too wet. *Pansies.*—These either having been potted-up or planted out for blooming, as previously directed, will require but very little attention for a time. Those in frames should be grown as hardy as possible, by keeping the lights off whenever the weather is fine, tilting them back and front at other times. Cuttings may still be put in for the second or summer bloom. *Pinks.*—Examine the beds occasionally for grubs, which are often very destructive at this season. If a few plants of each variety have been potted as recommended last month, they will come in very useful for filling up any vacancies made by insects or other causes. Loosen the surface of the beds when dry, to prevent the soil from becoming green and sour. *Tulips.*—Plant at the first favourable opportunity, choosing a fine dry day, when the soil is in good order. The bed may be protected for a short time by any temporary covering, if the weather is wet, to keep the soil dry till a fair day arrives. The offsets should have been planted in October. Use fine sandy soil about the roots.

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Bigarreau Ludwig

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LUDWIG'S BIGARREAU CHERRY.

WITH AN ILLUSTRATION.

LUDWIG's Bigarreau Cherry, which forms the subject of our present illustration, was introduced by Mr. Rivers, of Sawbridgeworth, and it was from a tree fruited in one of his orchard-houses in 1865 that our figure was taken. This variety is remarkable on account of its shape, which is long heart-shaped, being much more so than any other Cherry with which we are acquainted. It is a fine early Bigarreau, ripening just after the Early Red Bigarreau, in the end of June and beginning of July. The flesh is pale yellow, very melting and juicy, and much more tender than Bigarreaus usually are.

GESNERA ZEBRINA AND SPLENDIDISSIMA.

THE dry parched atmosphere of dwelling-rooms is very injurious to plants, particularly during the autumn and winter months when strong fires are kept up. Valuable plants that would suffer by being kept a few days in such an atmosphere should on no account be used for this purpose. Plants that do not suffer by this treatment should be as much as possible employed for in-door decoration. There are numerous plants well adapted for this purpose; I find these Gesneras very useful. The roots are all fresh potted in April, and then placed in one of the vineries at work. I put one root into a small pot, three into larger pots, five into larger still, and as many as a dozen roots into very large pots. By this plan I have plants of all sizes. I have the pots well drained, and I use a compost of nearly equal portions of loam, peat, and leaf mould mixed up with plenty of coarse river sand.

The plants soon begin to grow when put into heat. As soon as they are a few inches high they should be tied up neatly to stakes, and kept tied up from time to time as they advance in growth. I never shift them after they are potted. Gesnera splendidissima comes soonest into flower, generally in September, and lasts till December. G. zebrina begins to flower in October and lasts till January. They both withstand the dry atmosphere of rooms for weeks; and as the roots are generally full grown by the time they are in flower, they can be dried off when they are out of bloom on any shelf in the coolest part of the stove, and can remain there until the time for potting, in April, comes round again.

M. SAUL.

REMARKS ON FRUIT TREE CULTURE.—No. 15.

THE young maiden Apricot trees should be planted as before recommended as soon as maturity of growth is indicated by the ripening and falling of the leaf, which is generally about the middle of October. Let them be headed back in March to a length of 6 inches or thereabouts, according to the position of the buds; a transverse cut should be made at the *back* of the extreme bud, and the knife should be brought out a quarter of an inch above it. This is often disregarded by young practitioners, which induces me to be more particular in mentioning it minutely; for it must be remembered that the tree will always have to face one way, and this must be kept in view both in the training and pruning in these preliminary stages of preparation, and every cut must be made at the back of the shoots, not only that the cuts may be hidden, but because they are more likely to heal over without injury when they are not

exposed to the heat of the sun, by which the wood is so much hardened that the process of healing is very much hindered, and so much so in large cuts that the wound often does not heal at all, but a decay ensues, which in time penetrates to the interior of the branch and causes premature decrepitude in such branches.

From the six-inch stem as a starting point, train out five shoots, one in the centre and two on each side, all of which should be as distant from each other as possible—never by any chance training two shoots from one point; and as they generally break pretty freely, there will be no difficulty in selecting shoots as far apart as possible. This I would call laying a foundation for a free and unobstructed flow of sap. Trees which have been continually headed closely back, so as to have the shoots radiating from one point, become in time a mass of hard dead knots, and the sap is obliged to make for itself a less obstructed channel by an unnatural enlargement. Care must be taken to secure the young shoots from injury, and the centre one should be stopped when 6 inches long; but the side shoots may be allowed to grow on without stopping unless they throw out laterals towards the extremities, in which case they may be stopped at the laterals, but this is not material so long as there is a foot in length of clear wood free of lateral growths; indeed I often think it best to let them grow freely, as it induces the formation of roots, and by attracting the sap from the centre tends to produce an enlargement of the wood, which in the after stages of growth contributes very much to facilitate the equable distribution of the sap.

As there is always a very strong tendency in all fruit trees to throw the greatest strength into the centre of the tree on account of its more vertical position, the centre shoot which was stopped at 6 inches must be kept under rigid surveillance, and the effect of stopping will be to start the lateral growth, two shoots of which may be selected and trained out, one on each side, but not a centre one; these may be allowed to run a foot or so, but must be constantly stopped and checked from running away with the lead, which they invariably do if left unchecked.

The next winter pruning will be very simple—merely to shorten the four side shoots to 1 foot in length, and train them carefully out, the two lower ones nearly horizontal; and with regard to the centre, if the two laterals have formed good sound wood likely to be useful, they may be left and shortened to 6 inches, but if long-jointed, pithy, or unripened, cut back below them, for the purpose of obtaining two good shoots to train out in the following summer.

We have now a good foundation for carrying the leading fruit-bearing branches; and as the shoots are as it were lifted up from the starting point, I maintain that trees so prepared are far more likely to produce a sound and healthy growth than such as are closely headed, and in which the shoots all spring from one point in a cluster, which I have often thought may be one amongst the probable causes which contribute to the still-mysterious death of large branches, which in this case may be said to be crowded or crushed out of existence by the superior strength of some of the leading branches.

In the third year of growth these five or six shoots, as the case may be, will produce ten or twelve leading branches, and as they are destined to carry the fruit-bearing shoots in succeeding years, and at the same time will become the principal channels through which the sap will be equally distributed over the tree, it will be necessary to take some little extra care in the selection, each shoot being restricted to carrying two leading branches, one from the extremity and the other from near the base of the shoot, all the others being rigidly removed in a very young state, for two reasons: first, because it is not intended that these young shoots should carry fruit, even supposing that the extra shoots would produce blooming spurs; next, because it might otherwise be difficult to induce

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a shoot to break well at the base, and also because the growth being thereby all confined to these permanent branches, they become greatly strengthened and enlarged, which is an important matter in these early stages. It is true that large and vigorous wood will not carry fruit, but the shoots under consideration are not destined to do so, but to elongate themselves and carry the fruit-bearing branches from the centre to the extremities; and therefore the larger and more vigorous we can grow the wood at this stage the greater probability will there be that in the after stages of growth we shall have a strong and healthy development to operate upon, which is so far satisfactory, inasmuch as it is always better to deal with a growth which requires a curb, than to coddle and nurse up a weakly one.

Redleaf. JOHN COX.

BEDDING ROSES.

SOME people have an idea that any Rose is a good pole or wall variety that grows strong enough to run up a pole or wall, and that any Rose which is of a striking colour and free-flowering is good for bedding. In passing, I may observe that a pole or wall Rose should be short-jointed, break well at all the eyes with foliage or bud-stalks, and that its side branches should not grow longer than 12 inches without flowering.

My present purpose, however, is to speak of bedders. These should be Roses of moderate growth, of striking colours, and of tolerably erect habit, requiring no props. Cardinal Patrizzi is a perfect type of a bedder. Let us suppose that you have parterres, and wish to have each filled with a separate sort on the principle of Tom Thumb Pelargoniums, I think these would gratify your wishes.

HYBRID PERPETUALS.—Cardinal Patrizzi, deep rich purple crimson; Triomphe d'Angers, brilliant velvety red purple; Géant des Batailles, scarlet crimson; Le Rhone, ruddle red; Jean Bart, the nearest to lake; Pauline Lanzezeur, bright crimson; Louise Margottin, delicate satin pink; Prince Henri de Pays Bas, brilliant crimson, folded like a ball; Madame Alfred de Rougemont, white; Vainqueur de Goliath, crimson scarlet; Madame Bonnaire, white, with peach blush; Duke of Wellington, rich crimson, with dark shade; Belle Normande, pale rose shaded with silvery white.

BOURBONS.—Dupetit Thouars, beautiful crimson; Queen, buff rose.

CHINA.—Cramoisie Supérieure, rich velvety crimson; Eugène Beauharnais, amaranth.

TEA.—La Boule d'Or, egg yellow; Auguste Vacher, very curious; the petals are pure deep gold at the base, and pure bright copper at the edges. The colours are half-and-half without confusion.

GALLICAN.—The only good variegated Roses suited for bedding-purposes are Œillet Parfait and Perle des Panachées. The former is by far the best variegated Rose known, and most beautiful.

The best Roses of a very dark nature for bedding-purposes are Alexandre Dumas and Vulcan, both Hybrid Perpetuals.

Beds of the above, with from twelve to twenty plants in each, would look well, and they are best suited to the purpose of any that I know.

Okeford Fitzpaine. W. F. RADCLYFFE.

THE HOLLY.

How fine the Hollies are here this season, and how early the fruit is ripe! Trees at this place had ripe berries two months ago, and the birds have now

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nearly destroyed all the earliest-ripened berries. By Christmas I anticipate we shall have but a small quantity of Holly with ripe berries left for decorative purposes. Are Hollies generally loaded with fruit this season? or are those here exceptional as regards the early maturing of their fruit?

Wrotham Park. JOHN EDLINGTON.

DIANTHUS.

MR. J. EDLINGTON, of Wrotham Park, writes in the Number for November on the value of Dianthus Heddewigii, and I fully agree with him as to its usefulness; but for my own part I have found none to equal Dianthus hybridus, or atropurpureus, and the spotted varieties of Dianthus nanus, for standing the weather and for general and prolonged flowering. I find that Dianthus Heddewigii is looser in its flowers than the sorts which I name. Nothing can equal Dianthus atropurpureus and the beautiful spotted sorts for cut flowers and for dressing flower-dishes to stand on tables, they remain so long fresh and stand so erect. By sowing early in February, as recommended by Mr. Edlington, they will flower till hard frost comes on. I have plenty just now (November 14th), in flower. When there is a continued late demand for cut flowers I do not know of a more advantageous plant.

Dalmeny Park. WM. MELVILLE.

TRANSPLANTING FRUIT TREES.

To secure satisfactory results in transplanting fruit trees, the following important matters require to be carefully attended to:—1st, the Season for Planting; 2nd, the Proper Age of the Trees; 3rd, Lifting the Trees; 4th, Preparing the Soil; 5th, the Situation for the Trees; 6th, Planting; and 7th, Mulching.

1st. THE SEASON FOR PLANTING.—This is a question respecting which there is some difference of opinion even among gardeners. The greater number, however, agree that the best season for transplanting fruit trees is the autumn, immediately after the fall of the leaf, before the soil has parted with its summer heat. The tree is then in a dormant state. By transplanting at this early season, whatever wounds have been made in the roots begin to heal over, and sometimes spongioles are protruded, and by the time the spring arrives the tree is already somewhat established and ready to commence its growth. In mild open weather, planting may be performed throughout the autumn and winter, and until late in spring, but early planting—in the autumn—is decidedly best, and it should be always done then when possible; for, though, trees may be planted at all seasons, except, perhaps, midsummer, and with success when proper care has been taken in performing the operation and in attending to the trees afterwards, still it must be remembered that the sun has great power in spring, and drying winds often prevail, which tend to exhaust the young branches of trees of their moisture.

2nd. THE PROPER AGE OF THE TREES.—Fruit trees of all sizes and ages may be transplanted with considerable success, but where health, vigour, and duration are required, young trees are decidedly the best. Young trees of stiff, vigorous habit, make wood rapidly, and soon arrive at a state of healthy and long-continued productiveness.

3rd. LIFTING THE TREES.—This is a very important operation. We must always bear in mind that it is by the delicate and tender points of the roots that trees take up their food, and our chance of success is lessened by every

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one of these points that is bruised or injured. If we could remove trees with every fibre entire they would scarcely show any signs of change of position. Though it may not be possible always to get every root entire, we may with care save the greater part of them. Trees should always be planted as soon after they are lifted out of the ground as possible.

4th. Preparing the Soil.—The proper preparation of the soil is the groundwork of successful fruit-tree culture. Whether a transplanted tree shall struggle several years to recover, grow moderately after a short time, or at once start into vigorous growth, depends in no small degree upon the amount of care, labour, and expense the planter is willing to bestow on the soil in preparing it for the reception of the trees. As soils vary much not only in different parts of the country but often in the same localities, great practical knowledge is required to prepare every description of soil fit for fruit trees. Soils of a strong loamy nature are in general favourable for most kinds of fruit trees. On such soil, if the climate and situation be favourable, most kinds of fruits will succeed well with little or no expense for labour in preparing it. Sandy soils are easily worked, and fruit trees in some places do pretty well for a few years in such soil, but in general they are short-lived and soon fall into decay. When the subsoil is of such a nature that it can be deepened for the roots to penetrate, with a little labour it may be made to grow fruit trees well. Clayey soils are, when well-drained and the clay is not in excess, good fruit soils. They are usually strong and deep, and rather difficult and heavy to work. Fruit trees, such as the Apple, Pear, Cherry, Plum, and Apricot, that do well in these soils, are generally very free from disease and very productive. In days gone by, when the advantages of thorough drainage were not so well understood as they are now-a-days, fruit trees in clayey soils often suffered from canker brought on by the great quantity of water contained in the soil. Deep soils are not unfavourable to the growth of fruit trees if they are thoroughly drained, and the mechanical condition of the soil is such that the sun and air can freely penetrate it. It is only when from imperfect drainage they become full of water, and thereby shut out both sun and air, that they are unfavourable to the growth of fruit trees. All soils, of whatever nature, should be of good depth for fruit trees. In shallow soils, especially those which are sandy, fruit trees suffer much in hot weather from want of moisture, their vigour is checked in consequence, and they become feeble in growth and are comparatively short-lived or unproductive.

5th. The Situation for Fruit Trees.—All deep valleys and low-lying places are the worst situations for fruit trees, as the cold air settles down in these places in calm frosty nights, and the buds and blossoms are frequently destroyed. Elevated ground, if not very exposed to cold sweeping winds, is in general the best situation for fruit trees.

6th. Planting the Trees.—If the borders have been properly prepared, and if good trees have been carefully lifted, the operation of planting itself is a very simple one. A hole sufficiently large should be made, and the soil at the bottom should be left in a little hill for the roots to rest on, and not left in a hollow as is often done; the roots will then extend in their natural position, not being forced to turn up at their ends. The roots should then be all carefully examined, and all the wounded parts neatly cut off. The soil should then be carefully put in, taking care to cover every fibre and to fill up all the spaces between the roots. This is a very necessary point to be attended to. When the soil has been put in to the depth of a few inches over the roots it should be trodden gently all over if it be dry, as the soil always should be in autumn or winter planting. Then complete the planting by filling up level with the surrounding soil. On heavy clay soils deep planting should be guarded against.

On light soils I have found it beneficial. In general no tree should be planted deeper than it formerly grew. When planted the tree should appear just as deep as before, but standing, if the soil is heavy and retentive, on a little mound 2 or 3 inches higher than the surrounding ground; and if the soil is light and naturally well drained the tree should be in a little hollow 2 or 3 inches deeper than the surrounding ground level. By leaving a hollow in light soil, the rains in summer, instead of running off, get to the roots. If watering be necessary, it is also done best if the ground is hollow.

7th. Mulching.—This is an excellent practice with transplanted trees, and more especially for those that are removed late in the spring. Very many trees in a dry season fail at midsummer, after having made a fine start, from the parched condition of the earth at the roots. Watering frequently does little good to such trees, but mulching when they are planted obviates the necessity of watering in dry seasons, and promotes growth under all circumstances.

When the foregoing points have all been properly attended to, there need be no doubt as to fruit trees succeeding well.

Stourton. M. Saul.

MISCELLANEOUS NOTES.

In the report of the Meeting of the Floral Committee of the Royal Horticultural Society held on the 16th of October, I observed that a seedling Zonale Pelargonium was exhibited by Mr. William Paul, under the name of Ossian. Now, we have already one very excellent variety under the same name, and it is fast becoming popular in this part for its good bedding qualities. It is somewhat of a Nosegay in character, has good zoned foliage, and is a very free bloomer. The colour of the flowers is deep scarlet, and the bottom petals have a considerable shade of violet. It is, in fact, a near approach to Glowworm. With so good a variety as this already out, I think it would be undesirable to issue another of a similar character under the same name.

Referring also to the report of the same Committee of September 4th, I find that a first-class certificate was awarded to Mr. George, of Stamford Hill, for a Tropæolum named King of Scarlets. Now, I have had a variety under the same name for the last eighteen months, and a most beautiful bedding plant it is; the colour is deep orange scarlet, the growth moderate, and the kind is altogether the most effective I have seen for decorative purposes. The flowers are thrown well above the foliage, and in this respect it is much superior to many of the Tom Thumb varieties. One of the most pleasing combinations I have had this season was a large tub filled with equal quantities of the King of Scarlets and Convolvulus mauritanicus.

A word now about Potatoes. Like Mr. Radclyffe I have always allowed the tubers I intend for seed to lie upon the ground till they are quite green, and until the present year I had experienced no unpleasant results from doing so. When I took up my crops this season a diseased tuber was a rare exception. My garden being in a warm, dry, and sheltered situation, the bulk of the Potatoes ripened early, and although the haulm was very much blighted, yet the tubers were apparently free from disease. The store Potatoes were housed dry, and scarcely one has proved bad, while the seed Potatoes were thrown out upon the ground, and there they remained until the end of September, when they were gathered up and placed upon shelves in sheds and outhouses, where they could get both air and protection. By that time one-fourth had become diseased, and many more have since rotted. Of some sorts I have lost quite three-fourths of

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my seed stock, and yet none of the tubers which were stored dry have rotted, and this is the general experience of greening seed Potatoes in this neighbourhood in the present autumn. I was very sorry to see the other day, that of a large stock of seed Potatoes, many of them new and expensive sorts, belonging to a nurseryman, and which had been laid out to green and were then stored under the shelves of a long plant-house, nearly three-fourths were rotten, although not a single tuber appeared to be diseased when they were dug up. After this year's experience I think I shall be somewhat chary of greening seed Potatoes in the future.

There can be no doubt that the disease has presented itself among the later varieties in as virulent a form as ever, and this I consider is attributable to the exceedingly wet autumn; for whatever may be the primary cause of the disease, it is certain that nothing so much aids its development and propagation as an excess of moisture.

Southampton. A. D.

GUILDHALL SHOW.

Truly it was a pleasing sight which the old civic hall of the City of London presented on the morning of the 13th of November. Usually so cold and dismal at this season of the year, it had been galvanised into a new life by the holding within its walls of the usual autumnal meeting of the United Horticultural Society—a City horticultural organisation. All the gildings and trappings that made the ancient hall look smart on the recent occasion of the Lord Mayor's banquet had been allowed to remain; an outer hall temporarily erected for the purposes of the civic feast bristled with men in armour and sundry quaint devices, and to reach the temple of peace and mercy within, for a charitable bazaar was combined with the Show, you had to pass through a kind of military chamber of horrors peopled with the remnants of a past age. Within the great hall the scene was charming in the extreme. Flowering and fine-foliaged plants were ranged in stages along the sides of the hall, intersected by the stalls for the Fancy Fair in aid of the Albert Orphan Asylum. These were beautifully furnished and arranged, the gay and striking colours so plentifully presented contrasting nicely with the sombre hues of the fine-foliaged plants. Two lines of tables running down the centre of the hall contained cut flowers, bouquets, table decorations, &c. The fruit, of which there was an excellent show, was arranged in one of the ante-chambers of the Chamberlain's apartments.

There was considerable difficulty in picking out the various groups of pot Chrysanthemums, as, in order to secure effect, they were commingled in the formation of the groups before alluded to. Mr. George, gardener to Miss Nicholson, of Stamford Hill, had a group of plants of large-flowering Chrysanthemums that had been very skilfully managed. The following were very fine:—Golden Christine, Alma, Vesta, Christine, Princess of Wales, Beauté du Nord, Annie Salter, Golden Hermione, and Lady Hardinge. A group of Chrysanthemums in pots, shown by J. Crute, Esq., of Holloway, the President of the Society, was much admired, the flowers being remarkably fine. Mr. Forsyth, of Stoke Newington, also had splendid plants of Pompone kinds. The most noticeable were Cedo Nulli, Golden Cedo Nulli, Bob, Golden Aurora, and White Trevenna.

Of cut blooms there was a goodly number, and of something more than average quality. Looking along the stands of blooms one could not but be struck with the very large preponderance of light-coloured and yellow flowers, and the almost entire absence of lively-coloured red and crimson flowers. If the colour of the Pompone variety Bob could only be associated with flowers

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of the substance and build of Golden Beverley, Jardin des Plantes, White Globe, and Princess of Wales, then would the florist have made a wonderful step in the direction of improving the Chrysanthemum. The following cut blooms were fine indeed:—White Globe, Princess of Wales, Golden Beverley, Nil Desperandum, Gloria Mundi, General Slade, White Beverley, Cherub, Rev. J. Dix, Abbé Passaglia, Jardin des Plantes, Empress of India, Prince Alfred, and Mrs. W. Holborn. Mr. Slade had a stand of six blooms of Gluck, clear yellow, very fine indeed. Then there were also stands of the Anemone-flowered kinds, singular-looking from the quilled centres with an outer edging or fringe of flat florets, and yet showy notwithstanding. Of new kinds but two were shown—one by Messrs. E. G. Henderson & Son (who have this season been very successful with the exhibition of Chrysanthemums), named White Princess, pure white, a large and full incurved flower, to which a first-class certificate was awarded; and Mrs. Heale, a kind of brownish pale red, also a good incurved flower, shown by the Secretary, Mr. W. Heale.

In a group of fine-foliaged plants shown by Mr. Tanton, of Epsom, was a splendid specimen of Cyperus alternifolius variegatus, beautifully variegated and well grown. The group from Messrs. E. G. Henderson & Son, of their pretty Grass, Poa trivialis argentea, was a pleasing speciality also. It promises, if hardy enough, to be a very valuable addition to our ornamental bedding plants.

Apples were plentifully produced, and considering the season wonderfully fine. The six dishes of table Apples for flavour, shown by Mr. Webb, of Calcot, Reading, were of surpassing quality. The sorts were Court Pendu Plat, Scarlet Pearmain, Ribston Pippin, Old Pomeroy, King of the Pippins, and Fearn's Pippin, all richly coloured. The King of the Pippins was very handsome indeed. Generally this variety was shown very fine; so were the Blenheim Pippins, which, though not so large as in previous years, were excellently coloured; some Blenheims, shown by Mr. Sydney Ford, of Horsham, were grand examples. Pomme de Neige, a crimson-streaked Apple, was a nice-looking fruit; so were the Cockle Pippins shown by Mr. Ford, and there were likewise some good specimens of Adams's Pearmain. Mr. Turner, of Slough, furnished fine fruits of Grenadier, Hanwell Souring, Dumelow's Seedling, Cornish Aromatic, Braddick's Nonpareil, Frogmore Golden Pippin, a shorter and broader fruit than the old kind, fine Golden Noble, Cox's Orange Pippin, as only Mr. Turner can colour it, Lord Derby, Alfriston, Reinette du Canada, Cellini Pippin, Frogmore Prolific, Cox's Pearmain, and Dutch Mignonne. In a collection shown by Mr. Webb there were fine fruits of some of the foregoing, and, in addition, Royal Russet, General Havelock, Hollandbury, and Emperor Alexander. Mr. Turner also furnished a very interesting collection of Pears, containing the following among others:—Vicar of Winkfield, Beurré Clairgeau, Ne Plus Meuris, Chaumontel, Prince Albert, Marie Louise, Epine Dumas, Winter Crasanne, Jean de Witte, Reine d'Hiver, and fine specimens of the old Swan's Egg.

Referring again to Apples, Mr. Webb's six dishes of kitchen fruit comprised Hollandbury Pippin, Emperor Alexander, Wellington, Blenheim Pippin, Reinette du Canada, and Kentish Fillbasket. It is not too much to say that they were of enormous size. Other sorts shown in this class were Warner's King, New Hawthornden, Hall Door, Holland Pippin, a variety very like Blenheim Pippin, Large Russet, Tankard, Wadhurst Pippin, Winter Codlin, Minchall Crab, and Norfolk Beefing. In the class for a single dish of table Apples for flavour the following were produced:—Ribston Pippin, Cox's Orange Pippin, Fearn's Pippin, Braddick's Nonpareil, Trumpington, Stone Pippin, Margil, Lord Nelson, Blenheim Pippin, and King of the Pippins.

In the class for six dishes of dessert Pears some remarkable fruit from trees

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in an orchard-house were shown by Mr. Geo. F. Wilson, of Wandsworth—viz., Glou Morceau, Doyenné Goubault, Triomphe de Jodoigne, Beurré d'Anjou, Chaumontel, very fine, and Winter Nelis. The following Pears were also very good:—Forelle or Trout Pear, a very high-coloured fruit, Joséphine de Malines, Glou Morceau, Beurré Diel and Beurré de Capiaumont, both very fine, and Vicar of Winkfield. The following dessert Pears were shown in the class for one dish, flavour being the point of merit:—Van Mons Léon le Clerc (these were very fine, from Mr. Kaile, of Ripley), Marie Louise, Chaumontel, Beurré Diel, Duchesse d'Angoulême, and Knight's Monarch shown by Mr. Turner, of Slough. The palm was awarded to Marie Louise. Some very fine baking Pears came from Mr. J. H. Mortimore: they were Verulam, Catillac, and Uvedale's St. Germains.

Pine Apples were very fine, especially some from Gunnersbury Park, shown by Mr. Forsyth. He had a splendid Charlotte Rothschild and three fruits of the Smooth-leaved Cayenne. Gunnersbury has long been famous for its Pines, and its ancient reputation was fully sustained here.

Black Grapes were represented by Barbarossa, Esperione, Dutch Hamburgh, Alicante, finely-coloured, Black Prince, very good Lady Downe's, West's St. Peter's; Mill Hill, Black, and good bunches of Muscat Hamburghs. The Black Prince and Alicante were from Messrs. H. Lane & Son, of Berkhampstead. Talk of White Grapes! it was worth a long journey to the Guildhall to see the really magnificent bunches of Muscat of Alexandria, shown by Mr. W. Meads, gardener to R. Currie, Esq., Minley Manor, Farnborough. The three bunches weighed 12 lbs. 2 ozs. Not only was the colour all that could be desired, but there was such a rich bloom on them as well, while the berries were large, full, and even-sized. Of other White Grapes Messrs. Lane & Son had Raisin de Calabre, very fine; Buckland Sweetwater, remarkably well-coloured, though the berries were of uneven size; Trebbiano, very fine, but not well ripened; fine Bowood Muscats, some monster bunches of Chavoush, and some long but lanky bunches of the new Grape Duchess of Buccleuch, which is said to possess an exquisite flavour, but the berries were very small indeed. Mr. Webb, of Reading, had a basket of seedling Black Grapes, grown and ripened on an open wall without the aid of artificial heat, both well ripened and coloured.

As usual there were some et-ceteras, but nothing of very great note. The Show proved a great success, a very gratifying fact seeing that it was for the benefit of the benevolent fund in connection with the United Horticultural Society.

R. Dean.

TOMATO CULTURE.

Tomatoes, or Love Apples as they are sometimes called, are in great demand in most large establishments, and may be grown successfully in various ways, but every gardener has not the requisite means at command to secure a supply for six or eight months out of the twelve. Moreover, as the past summer has been a very unfavourable one for ripening the fruit in the open air, as recommended by Mr. J. Webster, at page 57 of the last volume of the Florist and Pomologist, some account of the mode of cultivation which I pursue may prove useful to your readers.

The variety which I have grown for the last ten years is Powell's Dwarf Red, which I obtained from Mr. C. Turner, of Slough, and I keep it true by propagating it by cuttings instead of by seeds. I also prefer plants from cuttings, because they come into bearing very much sooner than seedlings, and are shorter-jointed. I fill two or three 32-sized or six-inch pots with cuttings about

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the last week in August or the first week in September, and if placed in a greenhouse along with other cutting-pots, no plant that I know is more easily struck or wintered than the Tomato.

As soon as forcing is commenced, which is about the 1st of February, I pot off the plants into 48-pots, and grow them on; at the same time their tops are taken off to make some more cuttings, which, if placed in a house or pit with a temperature of 50° or 60°, will soon make nice plants to succeed those struck in autumn. The latter I shift on from 48's to 24's, using plenty of rotten dung and road sand, and as soon as the plants have filled the 24-pots with roots I shift into No. 1-sized pots, using about 2 inches of turf for drainage and the same soil as that employed for the last shift, potting them as firmly as possible. I set the pots on the flue in the forcing-house, and train the plants to wires or stakes as most convenient. After the plants have filled their pots with roots, growth will be very much strengthened by watering twice or thrice a-week with liquid manure, as the Tomato is a very gross feeder. At the same time they may have a mulching of about 3 inches of rotten dung placed over the soil in the pots, which keeps the roots cool and moist.

By the above mode of cultivation I have been able to keep the family pretty well supplied throughout the summer, as well as during the spring months; but of the plants upon the open walls scarcely any ripened fruit, for they suffered from disease worse than the Potato, and this is not surprising considering how much more the Tomato is exposed to the atmosphere than the tuber of the Potato, which is under ground.

In 1865 I ripened a large quantity of fruit in the open air on a south border by training the plants to stakes 5 feet from the wall, and as soon as they reached the top of the stakes, which were 3 feet above the ground, I began to cut away some of the small fruit as well as a portion of the leaves. In whatever way the Tomato is grown, success in a great measure depends on the thinning of the fruit and foliage, so as to admit both the sun and air to the fruit to colour it.

Elsenham Hall Gardens. WILLIAM PLESTER.

ON THE SEEDING OF CONIFERS.—No. 3.

PINUS INSIGNIS, PATULA, AND PSEUDO-STROBUS.

PINUS INSIGNIS is one of the most lovely and distinct free-growing Pinuses, and has beautiful deep grass-green leaves. Its leading shoots here make a growth of from 2 to 4 feet in length in a season, and the tree is branched to the ground. The cones are produced in clusters of from two to six, and adhere closely to the wood. They are large, heavy, from 4 to 6 inches long, broadest a little below the middle, of a light brown colour, smooth, and shining. Squirrels do them very little injury. The seeds take four years to ripen, counting from the first appearance of the cones.

For many years Pinus insignis has produced cones and seeds at this place, and there are specimens from 3 feet to 80 feet high. Many raised from seed of our own saving are 30 feet or more in height, and have also produced cones for several years. The wood with us is very full of turpentine. There is one fine tree here with a stem 11 feet in circumference at 4 feet from the ground. This will give some idea of the growth made in the few years which have elapsed since Douglas first introduced the seed into this country.

PINUS PATULA is a very graceful, handsome tree. The wood is smooth, shining, lead-coloured, and the leaves are long, of a beautiful shining bright green, and have a remarkably fine appearance, especially when the sun plays

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on them. The cones are from 3 to 4 inches long, of a pale brown colour, and adhere closely to the wood for several years. The seeds are ripe in the fourth year after the cones appear.

PINUS PSEUDO-STROBUS.—This is a very pretty, neat, bluish grey-coloured, shining Pinus, in the way of P. excelsa, but the branches are more dense, slender, and recurving. The cones are nearly of the same colour as those of P. excelsa, but not so long nor so much in circumference: in form they are curved. Seed ripens in the second year.

Bicton. JAMES BARNES.

NEW ROSES.

THE French horticultural publications contain several descriptions of new Roses, and the growers' catalogues many more. Of course, a large proportion may be expected, as usual, to prove of inferior merit. This English rosarians well know to their cost. The following are some of the new varieties; but it may be well to observe that the properties ascribed to them rest on the authority of the raisers, except in some instances, where the descriptions are taken from the above publications:—

M. Rolland, of Orange, sends out two—viz., Clothilde and Aurore.

Clothilde is said to be vigorous and very free-flowering, with very large flowers, which are sometimes white with a bright rose-coloured centre, sometimes rose or salmon, and occasionally exhibiting a mixture of all these colours. It is a Tea Rose, and is stated to have been raised from Bougère.

Aurore is of the same origin; it has the flowers of a Tea Rose, with the wood and foliage of a Hybrid Perpetual. The flowers are large, very full "*rose aurore.*" At present it is said to be not very perpetual; but if pinched shortly before the flowers open new buds are produced in a few days.

M. Eugène Verdier has ten Hybrid Perpetuals of his own raising, the names of which are:—

Comte Litta.—Flowers about 4 inches in diameter, full, well formed, with very large petals, velvety purple, shaded with fiery red, and bordered with violet. Magnificent colour.

Jules Calot.—Flowers 3 inches in diameter, in clusters of from ten to fifteen, full, of very good form, and standing well out, bright carmine, deeply edged with blush.

Madame George Paul.—From 4 to 4½ inches in diameter, full, imbricated, of fine form, with large rounded petals, lively deep rose, much shaded, and deeply edged with blush.

Madame la Baronne Haussmann.—Flowers 3½ inches in diameter, well formed and full, bright carmine.

Madame la Baronne Maurice des Graviers.—Rather more than 3 inches in diameter, well formed, full, and showing well, bright cherry red shaded with rose and carmine, reverse of the petals blush.

Madame la Comtesse de Turenne.—Plant very vigorous; flowers 4 inches in diameter, full, flat, imbricated, delicate flesh with a bright centre.

Mademoiselle Annie Wood.—Plant very vigorous; flowers about 4 inches in diameter, very full, perfectly imbricated, fine clear red.

Mademoiselle Eleanor Grier.—From 4 to 4½ inches in diameter, beautifully formed and full, lively rose. A remarkable variety, bearing considerable resemblance to a fine Provence Rose.

Napoleon III.—Flowers 4½ inches in diameter, in clusters of from three to six, full, splendid in colour, combining bright scarlet with a dark slaty violet. A first-rate and most effective variety.

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Velours pourpre. — Flowers 3½ inches in diameter, full, bright velvety crimson, shaded with dark brown, scarlet, and violet.

The principal Hybrid Perpetuals of other growers are:—

Alba carnea (Touvais).—Medium sized, full, and very well formed, white, slightly tinged with rose, reverse of the petals pure white.

Antoine Ducher (Ducher).—Raised from Madame Domage; flowers very large, full, and well formed, bright red. Plant very vigorous.

Aspasie (Touvais).—Large, very full, flat, clear red, with a bright crimson centre.

Berthe Chanu (Fontaine).—Large, full, imbricated, bright rosy carmine.

Capitaine Paul (Boyau).—Large, full, bright red.

Charles Verdier (Guillot père).—Raised from Victor Verdier. Plant very vigorous; flowers very large and full, well formed, beautiful rose colour, edged with blush.

Claire Renard (Oger).—Large and full, cupped, bright rose.

Comtesse de Vallier (Damaisin). — Medium-sized, well formed and full, lively deep violet purple, shaded with a blackish hue.

Docteur Larrey (Moreau-Robert).—Large, globular, and full, vinous red, shaded with carmine.

Eugène Scribe (Gautreau).—Large, well formed and full, fiery red,

Felix Genero (Damaisin).—Large, full, and of fine form, beautiful violet rose.

RED ASH-LEAVED KIDNEY POTATO.

We grew here a Potato this season with the above name, and I presume that it is the identical kind mentioned in last month's Florist and Pomologist by your highly valued correspondent, the Rev. Mr. Radclyffe. A better flavoured more prolific Potato we had not in the garden, although we planted about twenty distinct kinds. It is remarkably short in the haulm, and may be safely planted much more thickly than Potatoes generally are. For gardens of limited extent I strongly recommend this kind. I only found a very small percentage of diseased ones: this is a most important point to all growers of Potatoes. With us it was not quite so early as the old Ashleaf, but this is of minor importance when all its other good qualities are taken into consideration.

Wrotham Park. John Edlington.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

November 6th.—A very interesting feature of this meeting was a collection of branches of hardy fruiting shrubs and trees from the gardens of the Society, consisting of nine varieties of Cratægus, the most showy-looking being C. coccinea, having large, round, bright crimson fruit, and C. aronia, with large yellow fruit; four varieties of Cotoneaster; the common Yew; Arbutus; Snowberry; Berberis asiatica, with oblong red fruit; Biggs's Everlasting Crab, with large reddish orange fruit; the common Privet; Arum zebrinum, furnished with compact heads of orange-coloured fruit; and Phytolacca decandra, also producing close heads of Blackberry-like fruit. From Messrs. J. & C. Lee came cut specimens of Schizostylis coccinea from the open ground, with rich, saucer-shaped, crimson-scarlet flowers freely produced on spikes. Should it prove hardy this will be an invaluable autumn or winter-flowering plant for the open ground. It is also well adapted for cultivation in pots. From Messrs. E. G. Henderson & Son came a number of plants of the beautiful silvery-

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leaved Grass, called Poa trivialis argentea elegans. This has hitherto been known under the wrong name of Cynosurus cristatus foliis variegatis, a name under which it received a first-class certificate; now, however, that it has flowered it proves to be a Poa, and will henceforth bear the name just quoted. From James Bateman, Esq., of Biddulph Grange, Congleton, came cut blooms of Clematis Jackmanni, from the open air, to show its hardy character. It is a most valuable hardy out-door creeper; it flowers very freely and very late; the flowers are of a violet-purple colour. From Mr. Forsyth, of Gunnersbury, came a very handsome fruit of the new Charlotte Rothschild Pine, weighing 9 lbs., and two fruits of the Smooth-leaved Cayenne, each 7 lbs. weight. From Mr. Downing, gardener to T. Grissell, Esq., of Norbury Park, Dorking, came some fruits of the Pomegranate, which were, however, scarcely ripe. It would appear that the fruit has scarcely, if ever, ripened before in England; but these have been ripened under glass without heat. Some fruits, much finer and better ripened, were shown by Mr. Downing last year. From the same came very fine examples of the following Apples:—Gloria Mundi, Emperor Alexander, Blenheim Pippin, finely coloured, Wellington, Warner's King, and Alfriston. From Mr. John Cox, of Redleaf, came splendid Beurré Clairgeau Pears. From Mr. W. Melville, of Dalmeny Park, came specimens of a Grape called Champion Frontignan, which was not considered so good as the Muscat Champion raised by him some time ago. From Mr. Taplin, of Chatsworth Gardens, came Mangoes; and from the Rev. George Kemp examples of Royal Muscadine Grapes, ripened out of doors. Messrs. Veitch & Son had a quantity of Beets from their trial ground, consisting of Veitch's Dwarf Dark Red, a sort that grows very much to top; Dewar's Dwarf Short-top Red, the roots of which are very handsome, the flesh being also of a good colour; two hybrid varieties, shown as Nos. 2 and 3, both long and coarse-growing sorts, No. 2 being the best flavoured; Winton's, a high-coloured but coarse-growing sort, with a great deal of top; Nutting's Dwarf Red, an extremely good stock, roots long but thick; Cattell's Crimson, a long tapering root, very thin; Pine Apple, a very high-coloured and favourite sort that grows well out of the ground, and produces but little top; White Silesian, like a white Mangold Wurtzel; and the Silver or Sea-kale Beet; the midribs of the leaves of this variety are cooked like Sea-kale. The White Silesian appears to be the Sugar Beet of the Germans, from the roots of which great quantities of sugar are extracted. The leaves can also be used as Spinach.

November 20th.—Three seedling large-flowering Chrysanthemums were produced by Mr. John Salter, to which first-class certificates were awarded:—viz., Countess of Warwick, pale yellow, turning to ivory white with age, a large and full incurved flower; Lady Talfourd, silvery lilac, a fine incurved flower; and Faust, bronzy red, large and full. Mr. Salter also had a rosy lilac sport from the old Cedo Nulli, but without the quilled centre of the original. From Mr. W. Earley, of Digswell, came two Ipomæas, the one having large bright blue flowers with white throat, a very showy stove creeper; the other having crimson tube-shaped flowers. They were considered not to possess any special merit. Mr. Earley also had a new hybrid greenhouse Begonia, B. phyllomaniaca, free-blooming, and with more of red in the flowers than B. Saundersii semperflorens. Mr. Earley produced examples of Sam Young, Cox's Orange, Fearn's, and King of the Pippins; capital Salsafy and Scorzonera, and examples of Earley's Selected Prize Brussels Sprouts, having stalks about 3 feet long, covered with small sprouts. They had evidently been subjected to very high cultivation. Mr. Ruffett, of Brockett Hall Gardens, had an interesting collection of Apples and Pears, and examples of the Early Black Potato. From Mr. Stewart, of Nuneham Park Gardens, came fine Nuneham Park

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Onions, also White Spanish and the Deptford. From Mr. Cox, of Redleaf, came fine Chaumontel Pears; and from Mr. Ingram, of Belvoir, came a new pan for forced Strawberries, described in another page. From Messrs. Veitch & Sons came a collection of Celery of red-stalked kinds. These were Ivery's Nonsuch Red, pronounced by the Committee to be the best; Solid Red; New Red, a large-growing kind; Cole's Defiance Red, and Hood's Dwarf Red. Of whites, Incomparable Dwarf White, pronounced by the Committee to be the best white, but much larger-growing than this sort is generally seen; and Paris Dwarf White, which is evidently the Incomparable Dwarf White. This dwarf white Celery has been grown for a length of time at the Chiswick Gardens under the names of Céleri Turc and Blanc Court Hâtif. Of other whites there were Seymour's White, Cole's Crystal White, and Veitch's Silver White, having more of a yellow tinge in the leafstalks than is generally seen.

R. Dean.

NEW FANCY PELARGONIUMS.

The following descriptive list of new Fancy varieties, several of which have been distinguished by first-class certificates during the past summer, will meet the request of "Acme," who asks for information on the subject.

Andromeda (Turner). — White, with veined rose upper petals, lower mottled with lilac.

Beatrice (Turner).—Light flesh colour, blotched and spotted purplish crimson.

Duchess of Buccleuch (Turner).—Delicate lilac, with white throat and edges; fine form and habit.

Gipsy (F. & A. Smith).—Dark crimson upper petals, lower mulberry, crimson belt; good form.

Imperator (Turner).—Blush, upper petals bright lake, lower petals mottled with crimson; large.

Liberty (Turner).—Fiery crimson, with light throat; dwarf habit; a most profuse bloomer.

Marginata (F. & A. Smith).—Upper petals claret, shaded off, lower claret, white centre; good form; free bloomer.

Memnon (Turner).—Bright crimson, with blush centre, lower petals mottled with carmine.

Mirella (Turner).—Vivid rosy lilac, light throat and edges; free bloomer.

Miss Louisa Pyne (F. & A. Smith).—Rosy carmine, with large white centre, and neat white margin; of the finest form; a free bloomer; extra.

Neatness (F. & A. Smith).—Violet carmine, edged with white, lower petals nearly white, with a well-defined spot on each petal; good form.

Oculata (F. & A. Smith).—Violet carmine, edged white, centre white; very free, and of fine form.

Princess Helena (Turner).—White, with purplish rose upper petals, under petals veined with the same.

Sylvia (Turner).—White, with delicate rose upper petals, edged with white, under petals spotted; fine shape.

NEW STRAWBERRY PAN.

It will readily be admitted that in forcing Strawberries it is a matter of the very greatest importance to secure to the plants as far as possible those natural circumstances they enjoy and thrive under in the open borders. To guide us

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in the management of the Strawberry when introduced into the forcing-house, we should make ourselves acquainted not only with the circumstances that act favourably and conduce to the highest development of the fruit when grown in the open air, but also with those peculiarities of soil and conditions of climate that exert a prejudicial influence upon it. We find the Strawberry luxuriant and fruitful in rich retentive loams, which afford unfailing supplies of moisture; and weak and unfruitful when grown on poor sandy soils, or where the subsoils are gravelly or open and stony, rendering the supplies of moisture, so much required by the plants from the time of flowering to the maturity of the fruit, failing or uncertain. Strawberries grown in pots and placed in the forcing-house are liable to suffer, even under the best management, from dryness, and occasionally from too much water. To prevent the too rapid drying up of the soil of the Strawberry-pot, and to afford an additional evaporating surface, two plans are called into use. One consists in the employment of slips of turf cut to the width of the shelf and placed upon it, the pots resting directly upon the turf. The other is to place an ordinary shallow pan beneath the Strawberry-pot: the objection to this is that the water passing through the soil of the pot is retained by the pan, and the roots often stand in water. The pan I have invented is not liable to this objection; but in keeping the lower roots cool, and in affording a certain amount of evaporation, it presents the same advantages as the turf, and is superior in convenience.

The pan is made to suit the ordinary 32-sized six-inch pot; it is 4 inches high, 7½ inches in diameter, and it is thus large enough to allow the Strawberry-pot to be placed within it, leaving a space of about an inch all round, which can be filled with sand or soil. The pan has a hole at the bottom, but a circular rim 1 inch in height surrounds the hole, and on this the pot rests. Between the circumference of the pot and the ring there is a space which holds water enough to keep the sand moist if replenished about twice a-week. The obvious advantages of the use of this pan are the greater security of the roots from dryness and the additional evaporating surface afforded by the soil in the pan, which being immediately beneath the foliage, provides a congenial atmosphere for the plant, and this has the effect of keeping down that pest in the Strawberry-pot—red spider.

Belvoir.—(*Gardeners' Chronicle.*) WILLIAM INGRAM.

NEW BOOK.

The Vegetable World; being a History of Plants, with their Botanical Descriptions and Peculiar Properties. By LOUIS FIGUIER. London: Chapman & Hall, 193, Piccadilly.

WORKS such as the one before us are a pleasing sign that there exists a growing desire for a knowledge of plants and their structure. There was a time not long gone by when botany and vegetable physiology seemed to languish among us; but now the tide seems to have set in afresh in their favour, and there is good reason to hope that they will be more generally studied than ever. The natural sciences are rapidly but surely winning a higher position in our educational schemes, and lessons in the great book of Nature which lies open before us are obtaining the preference over those which are gained from the languages and the literature of peoples which have long since passed from the face of the earth. Without desiring to disparage the classics, it must be confessed that the teachings of science have a utility, a value, and a truth which the former do not possess, however much they claim our respect as a branch of learning. The memory of an ode of Horace, or the whole of Virgil's Æneid,

would not teach a Crusoe to prolong his existence on a barren island; but a knowledge of plants might enable to subsist, and a knowledge of mechanics might increase his comforts, or enable him to find the means of escape. We regard, then, with pleasure, works which tend to encourage an acquaintance with science, more particularly those which relate to the delightful study of plants, and such a work is the "Vegetable World." It forms an elegant volume of 576 large octavo pages, and is illustrated with no less than 446 engravings and 24 plates, all of which are most beautifully executed, chiefly from drawings made from nature by M. Faguet, Botanical Illustrator to the Faculty of Sciences of Paris. It is divided into three parts, namely—1st, the Organography and Physiology of Plants; 2nd, the Classification and Natural Families of Plants; and 3rd, the Geographical Distribution of Plants.

In the first division, occupying altogether 192 pages, the various parts of plants and their principal modifications are described in plain language, but with scientific accuracy, and the descriptions are made still more clear by numerous beautiful engravings. The functions of the various organs are also entered into at considerable length; and exhalation, respiration, circulation, fecundation, and germination are well explained.

The following extract relative to respiration will serve as an example of the manner in which the author treats his subject:—

"If we place an entire plant or a leafy branch in a balloon filled with gas which cannot be renewed, and leave the whole in darkness for some ten or fifteen hours, we may assure ourselves at the expiration of this time that the atmospheric air contained in the balloon is no longer of the same composition as before the experiment. Carbonic acid will be there in greater abundance, and the quantity of oxygen will be less. But if in place of leaving the plant in darkness we expose the apparatus to the influence of the sun's rays, the phenomena will be reversed; after a few hours the air in the balloon will have lost a noticeable quantity of its carbonic acid, and will be enriched in its oxygen.

"In order to test this phenomenon, let us fill a bell-glass with water, to which has been previously added a considerable proportion of carbonic acid gas, and place in it a branch or an entire plant covered with leaves; expose the whole to the rays of the sun for some hours. The air, if analysed after the experiment, will be found to contain scarcely any carbonic acid, but it will contain a larger portion of oxygen than before the experiment. If a branch of a plant, with the roots fixed in soil, and consequently in its normal state of vegetation, is placed in a glass vessel, and by means of an air-pump a given quantity of air is caused to circulate round it, this air, which, before the experiment, contained from four to five ten-thousandth parts of carbonic acid, after the apparatus has been exposed to the influence of the sun's rays for a certain time will not be found to contain more than from one to two. If, on the contrary, the experiment is made during the night, it will be found that the quantity of carbonic acid would be increased, and at the expiration of a certain time would have risen to eight ten-thousandth parts. These experiments, in which there is an interchange of gas between the plant and the atmosphere, exhibit the double phenomena of absorption and exhalation in plants; in fact there is respiration. But the respiration of plants is not always the same, like that of animals, in which carbonic acid gas, water, and vapour are exhaled without cessation either by day or night. Plants possess two modes of respiration: one diurnal, in which the leaves absorb the carbonic acid of the air, decompose this gas, and extract the oxygen, whilst the carbon remains in their tissues; the other nocturnal, and the reverse, in which the plant absorbs the oxygen and extracts the carbonic acid—that is to say, they breathe in the same manner as animals do. The carbon which is used by plants during the day is indispensable to the perfect development of their organs and the consolidation of their tissues. By respiration plants live and grow.

"It is necessary to remark here that it is only the green parts of vegetables which respire in the manner described—that is to say, by absorbing carbonic acid and disengaging oxygen under the influence of light. The parts not coloured green, such as the fruit, seeds, red and yellow leaves, &c., always respire in one and the same manner: whether exposed to light or left in darkness, they always absorb the oxygen and disengage carbonic acid. They respire in the same manner as animals. If we consider that the green parts of the plant are far more numerous than those which are otherwise coloured, that the clear light nights of hot countries may rather be said to diminish than to interrupt their respiration,—that the season of long days in northern countries is that of the greatest vegetative activity—we shall be led to the conclusion, that the great mass of plants live more in light

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than in darkness, and consequently that their diurnal respiration greatly preponderates over their nocturnal. The diurnal respiration of plants, which pours into the air considerable quantities of oxygen gas, happily compensates for the effects of animal respiration, which produces carbonic acid gas, injurious to the life of man. Plants purify the air injured by the respiration of men and animals. If animals transform the oxygen of the air into carbonic acid, plants take this carbonic acid back again by their diurnal respiration. They fix the carbon in the depth of their tissues, and return oxygen to the air, in reparation.

"Such is the admirable equilibrium which the Creator has established between animals and plants, such the beneficial communication which assures to the air its constant soundness, and maintains it in that state of purity which is indispensable to support the life of the living creatures which cover the globe."

The second division, or that which relates to the classification and natural families of plants, constitutes the major portion of the work, occupying upwards of 300 pages. In this the editor of the translation adopts, and we think not wisely, Dr. Lindley's system as given in his "Vegetable Kingdom," seeing that that of De Candolle is now universally adopted in this country. However, the leading characteristics of the most important natural orders are described, as well as many of the species, and the properties and products of some of these receive a considerable share of attention. Thus in Papaveraceæ, after stating the peculiarities of the order, the Opium Poppy is figured and described, and a short account is given of its products; and so on with other natural orders.

The third part, or that which is devoted to the geographical distribution of plants, fills rather more than forty pages, affords a very good idea of the vegetation of different parts of the world, and will be read with pleasure as well as profit.

It is but just to add that the translator has well executed a rather difficult task, and although there are some trivial errors and misprints, for instance in the spelling of the botanical names, the book is a good book, and will be very serviceable to those commencing the study of the subjects to which it relates, and of which it may be made the means of affording a very respectable knowledge.

OUR CONTEMPORARIES.

THE BOTANICAL MAGAZINE for November has plates of the following:—

Brachystelma Barberiæ (Mrs. Barber's Brachystelma).—An Asclepiadaceous plant discovered by Mr. Bowker (Mrs. Barber's brother) in the valleys of the Isomo river, Kaffirland, but not yet introduced. It has a large depressed tuber, of the size of a Turnip, from which proceeds a very short stem, furnished with spreading, linear-oblong, acute leaves 3 or 4 inches in length. The flowers are collected in a sessile globose capitulum from 4 to 5 inches in diameter, dingy purple, speckled with yellow in the disk. The corolla is five-lobed, an inch across, and the lobes terminate in slender tails, an inch in length, which arch inwards and cohere over the centre of the flower.

Nierembergia rivularis.—A beautiful little species lately introduced from La Plata by Messrs. Veitch, but discovered upwards of thirty years ago by Mr. Tweedie, abounding by the sides of the Plate river within the high-water mark. It has slender creeping stems and nearly sessile flowers, with a broadly campanulate yellowish white limb, borne on a very slender tube from 1 to 2½ inches in length, and of the same colour as the corolla, which is sometimes tinged with rose colour.

Notylia bicolor.—A beautiful but very minute Orchid, discovered by Mr. Skinner in Guatemala, and afterwards by Hartweg on Oak trees in the mountains of Comalapan. The whole plant does not exceed 1½ inch high, has somewhat scimitar-shaped leaves, and slender, graceful, drooping flower-spikes 2 or

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3 inches long, and bearing from ten to twenty flowers. These have whitish sepals, and lilac petals and lip. It has been grown for more than twenty years at Knypersley on a small branch of the Cork tree Oak, and flowers profusely in autumn.

Glyphæa Monteiroi. — A Tiliaceous shrub, discovered in Benguela by M. Monteiroi. It has large yellow flowers, but not of a sufficiently ornamental character to render its cultivation in our stoves desirable.

Vanda Bensoni.—A species nearly allied to V. Roxburghii and concolor, and discovered by Col. Benson in Rangoon. It has long flower-spikes, some of them in its native country being upwards of half a yard long and bearing as many as fifteen flowers. These are about 2 inches across, and have yellowish green sepals and petals marked with numerous reddish brown dots, and a rose-coloured lip.

The subjects of the representations in the FLORAL MAGAZINE for November are :—

Pentstemon Jaffrayanus.—A pretty, easily-cultivated, azure blue kind, introduced by Messrs. Veitch about ten years ago, but not yet so generally known as it deserves to be.

Fancy Pelargoniums Sylvia and *Liberty.*—Seedlings raised by Mr. Turner, of Slough; the former a beautiful delicate pink flower edged with white, the latter rich rosy crimson with a white centre.

Gladiolus Milton.—One of Souchet's varieties, with large creamy white flowers, tinted with rose, flaked with carmine, and feathered with purple.

Alternanthera sessilis amœna.—A very dwarf plant with coloured leaves, in which the colours are red, crimson, and olive.

OUR MONTHLY CHRONICLE.

ROYAL HORTICULTURAL SOCIETY. — Last month it was stated that the project of holding next year a show at Bury St. Edmunds in connection with that of the Royal Agricultural Society had been abandoned; but though such was then the case, thanks to local effort, and notably to the energy of Mr. D. T. Fish and other members of the local horticultural society, the proposition is now in a fair way of being carried into effect, and on a scale commensurate with the importance of the two great Societies representing the sister arts of Horticulture and Agriculture. The difficulties with regard to securing a suitable place in which to hold the exhibition have been removed by the liberal offer made by Mr. Guy of the use of a field opposite the Agricultural Show-yard, and situated near the Eastgate Street railway station; and should that site not prove in all respects suitable, another can easily be secured. The Royal Horticultural Society, seeing that they would have to spend about £1200, asked for a guarantee of half that amount, and this request has been liberally met, for already a guarantee fund, amounting to upwards of £1000, has been subscribed, and in return one-half of the profits are to be handed over by the Society to the guarantors. The Show, which is to be held in July next, will, it is understood, continue for four days, and if supported as it ought to be by exhibitors, it can hardly fail to prove a success in a horticultural point of view, whilst the large concourse of visitors which the Agricultural Society's shows invariably attract, will materially add to the receipts; and if this experiment be successful, it may be hoped that the lesson which it will have taught will be turned to advantage by holding from time to time great horticultural shows in the most important towns of the provinces.

An examination of gardeners will be held at the office of the Society at South Kensington, on Tuesday, December 18th, and candidates intending to present themselves must send in their names on or before the 11th of the month. Certificates will be granted to those who obtain the highest number of marks for their answers in practical gardening. A medal will likewise be annually given to the candidate who, having taken a certificate of the Society of Arts in Botany, Floriculture, or Horticulture, shall also gain the highest number of marks in practical gardening. These examinations, of which in future years two will be held annually—namely, one at Lady-day and one at Michaelmas, are open not only to the students at Chiswick, but to all gardeners who obtain

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certificates from the Society of Arts for Mensuration, Book-keeping, Practical Geometry, Botany, Floriculture, or Horticulture; also to those who can present a written recommendation from a Fellow of the Royal Horticultural Society, the President of any Floral or Horticultural Association acknowledged by the Society, or the Director of a public park or garden. There are other advantages offered to successful candidates under certain limitations, which it would occupy too much space fully to detail; but further information will be readily afforded on application to the Secretary of the Royal Horticultural Society, to whom, also, intending candidates should send in their names. The holding of such examinations is a step in the right direction, and may be made the means not only of advancing the interests of the successful competitors, but of gardeners as a class.

Manchester National Horticultural Show.—The schedule of prizes offered at the great horticultural Exhibition to be held in the Botanic Garden, Manchester, from the 7th to the 15th of June next, is on a liberal scale, the total amounting to £984 10*s*. For plants the sum of £910 is offered—viz., £485 to be competed for by nurserymen, and £425 10*s*. by amateurs; for fruit, which is open, only £74 is offered. The prices to be charged for the admission of visitors not being members of the Manchester Botanical and Horticultural Society, who will be admitted free, are 10*s*. 6*d*. on the first day, 2*s*. 6*d*. on the second, and 1*s*. on each of the remaining days.

OBITUARY.

Dr. Von Siebold, to whom we owe the introduction of many fine plants from Japan, died at Munich, it is said of typhus, on the 18th of October, at the age of 71.

Don Vicente Cutanda, Professor of botany, and Director of the Botanical Gardens at Madrid, died there on the 23rd of July. He was the author of a work on the flora of the province of Madrid, and a member of the Royal Academy of Sciences.

The *Gardeners' Chronicle* also announces the deaths of Professor Gasparini, of Naples, an eminent botanist, and of Mr. Gerrard, a zealous naturalist, who died recently in Madagascar of a pestilential marsh fever caught whilst collecting in that island. There, as well as in Natal and other parts of southern Africa, he had made large collections of plants and other natural objects; and in Harvey and Sonder's "Flora Capensis," besides many new genera, he added upwards of 150 species.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Stove.—This department should now present a gay appearance with Justicias, Epiphyllums, Begonias, Eranthemums, Bignonia venusta, Gesneras, Euphorbia splendens, and various other winter-flowering stove plants. To maintain these in perfection keep the air of the house moderately dry, with a temperature of 60° by night. Some kinds now at rest, and which it is desired to bloom, may be started, ready for potting-on next month. *Orchids.*—Follow out the instructions given last month. Take care that no plant shall be exposed to drip, otherwise it will be sure to suffer.

GREENHOUSE.

Remove all decaying leaves, and attend generally to cleanliness. Afford free ventilation in mild weather, using at the same time a little fire heat. Give no more water than is necessary to preserve the plants in a healthy condition, and apply it in the morning, so that the house may become dry before shutting-up-time. *Cinerarias.*—Give those plants intended for flowering in May their final repotting; they should have plenty of room, and the side shoots should be tied or pegged out as soon as long enough. Never use more heat than is sufficient to keep frost out of the house. *Heaths and Epacrises.*—Give air plentifully when admissible, and by degrees; so as to avoid draughts. The atmosphere should be now dry—that is, as dry as you can keep it without fire, which should not be allowed, except when the thermometer in the house is likely to fall below 32°. Water with caution. Frequently turn round the best specimens, and attack every appearance of mildew with sulphur. *Pelargoniums.*—Carry out instructions given last month, and tie out the branches, using small neat willow sticks. In this operation care should be taken to form a neat round bush. Commence by tying out the side shoots, and distribute the other shoots at equal distances. Water now but sparingly, taking care not to wet the foliage.

CONSERVATORY.

This should be kept as gay as possible with Chrysanthemums, Epiphyllums, Salvias, Linum trigynum, &c. Towards the end of the month, the early-started Roman Narcissus, Hyacinths, and Tulips, will increase the display. Avoid keeping much fire at this season; a moderately dry heat, just excluding frost, will be sufficient. Water in the morning, for the house to become dry by the middle of the day.

FORCING.

Forcing-house.—As the buds swell in the early vinery gradually increase the heat to

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55° at night, and, as they break, to 60°; the day temperature should range from 5° to 10° higher than that maintained at night. Keep a damp heat in the early stages, but as the Vines expand into leaf reduce the amount of atmospheric moisture. A gentle current of air should be given on most days, more or less according to the fineness of the weather. *Pines.*—Keep the main stock now dry at the root; we suppose these to be at rest, or nearly so. A moderate temperature, say 58° by night, with an increase of 10° or 15° in bright days, is only necessary. Pines in dung frames must have the necessary heat maintained by fresh applications of heated litter. The early-fruiting plants should now be started; gradually increase the top and bottom heat, and in a fortnight's time give a little water. This start will, in all probability, bring them up by Christmas, or soon afterwards.

KITCHEN GARDEN.

Clean and trench up vacant ground, digging it 2 feet deep, and leaving the surface either in ridges or very rough. Dung should be applied to the surface previously, and regularly mixed with the earth in digging. Attend to what crops are in the ground, and sow the first early crop of Peas on a warm border at once, if you wish to have them early, as well as a few Mazagan or Dwarf Fan Beans. A few Radishes or early Horn Carrots may likewise be sown in a very sheltered place, covering the beds with litter till the seeds come up. Look after mice, which are troublesome to the crops. Look over the root-stores.

FRUIT GARDEN.

There will probably be opportunities for proceeding with winter pruning during this month when other work cannot be advantageously carried on. Thin out the heads of standard trees, removing in the first instance dead branches, and then all those which are badly placed and obstruct the free access of air and light. Scrape off moss and rough scaly old bark from the stems; for the former grows at the expense of the trees, and the latter serves as a hiding-place for insects and their eggs. To destroy scale insects apply Gishurst compound at the rate of 8 ozs. to the gallon of water. Shorten the shoots of espalier and pyramid trees so as to secure the development of the buds; likewise the points of the secondary shoots, to favour the formation of fruit-buds. In doing this, however, due attention must be paid to the habit of the variety and the degree of vigour which the individual tree possesses, otherwise barrenness instead of fertility may be the result, in consequence of the energies of the tree being directed towards the formation of shoots instead of fruit-buds. Prune and nail wall trees, and be careful not to encourage too much the more upright-growing branches, and those situated near the top of the tree, otherwise those which have a nearly horizontal position, or which are situated near the ground, will be apt to die off. When this is the case they are not easily replaced, and valuable wall space is wasted. Proceed with transplanting when the ground is in a favourable condition: if not, better defer planting till it be so. Mulch after planting. Prune, stake, and mulch Raspberry plantations; and now is a good time to spread tan round Gooseberry bushes. A layer spread all over the ground to the depth of 2 inches is the best of all modes of preventing the attacks of the destructive Gooseberry caterpillar. Gooseberry and Currant bushes may now be pruned; it is good work for a frosty day. Unnail Fig trees, tie the branches up in bundles, and protect with mats and straw.

FLOWER GARDEN AND SHRUBBERY.

All that can be done here will be to protect anything left in the ground from frost, and to preserve neatness and order. Planting deciduous trees and shrubs may be done in mild weather.

FLORISTS' FLOWERS.

Auriculas.—Very little water and plenty of air will be the principal points to attend to this month, beyond keeping the plants clean both of dead foliage and green fly. If the soil become green on the surface it should be loosened, but not so deeply as to disturb the roots. Should we get severe frosts a slight covering will be necessary at night. *Carnations and Picotees.*—Keep the pits or frames containing these plants as open as possible. If they have only lights over them, without protection at the sides till Christmas, so much the better. The plants will require water but very seldom, there being sufficient moisture in the atmosphere at this season. Too much moisture and not sufficient air are sure to be injurious; the spot will be the result of such treatment. The plants will now require looking over, cutting away all decayed foliage. *Dahlias.*—Examine the roots of choice kinds occasionally, to see they are not rotting at the stem; if so it will be best to cut away the part affected, and to dry the root, if at all damp. Much depends, however, on the convenience at command for wintering them; under the stage of a greenhouse is most general, but here it is often too damp; neither should they be placed in a situation that is too airy, as many kinds will dry up. They must be placed beyond the reach of frost. Seed will keep best in the chaff after it is thoroughly dried. *Pansies.*—Those in pots must have plenty of light and air; the lights should be taken quite off at every favourable opportunity. The cuttings striking should not have much water, or they are liable to damp off. *Tulips.*—These being now safely under the soil, there will be but little labour for two or three months to come. The beds may be exposed to any weather, with the exception of very heavy rains.

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THE

FLORIST AND POMOLOGIST;

A PICTORIAL MONTHLY MAGAZINE

OF

FLOWERS, FRUITS, AND GENERAL HORTICULTURE.

CONDUCTED BY

ROBERT HOGG, LL.D., F.L.S.,

AND

THOMAS MOORE, F.L.S.,

ASSISTED BY NUMEROUS ABLE CONTRIBUTORS.

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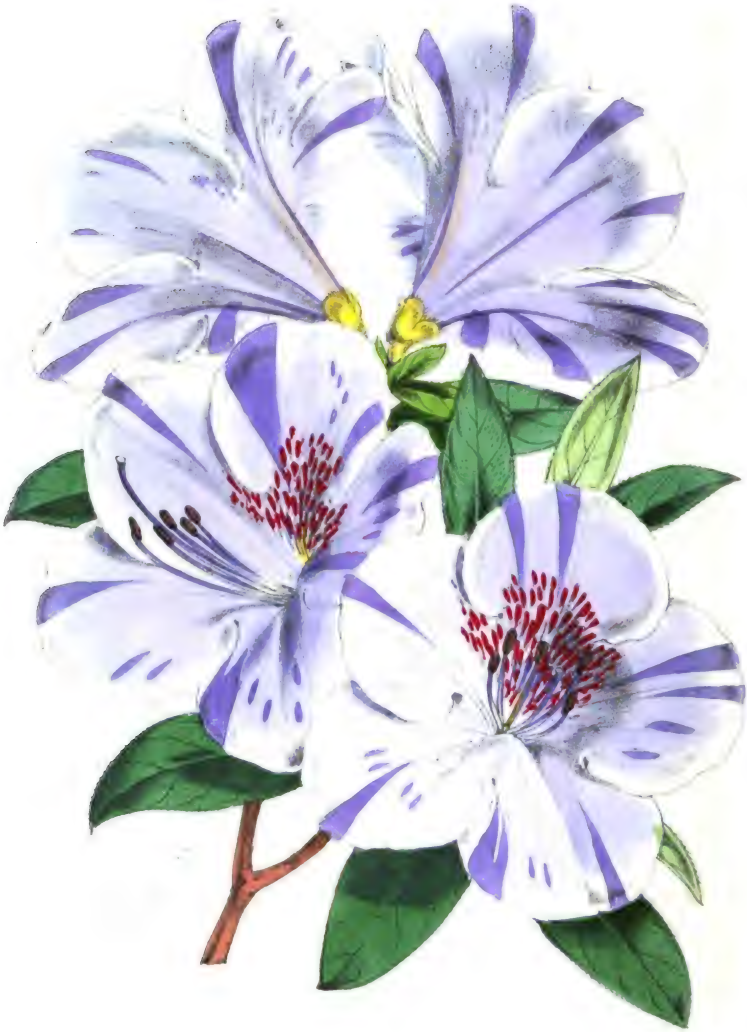

Azalea - Her Majesty

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THE

FLORIST AND POMOLOGIST.

AZALEA HER MAJESTY.

WITH AN ILLUSTRATION.

Those who are familiar with the high-bred Indian Azaleas of the present day are aware that several of the very finest varieties now in cultivation have not been produced in the ordinary course of nature—from seeds, but have appeared as sports upon plants of a totally distinct character: that is to say, an established plant of some given variety produces here and there, as if by caprice, a branch or a twig which is furnished with flowers totally unlike all the rest which it bears; and this branch or this twig, if propagated, in most if not all cases perpetuates the altered form. In this way new varieties are acquired, and so long as they are constant they are, of course, as useful to the cultivator and as ornamental in the greenhouse as those obtained from seed.

Mr. Barnes, of the Camden Nursery, Camberwell, to whom we are indebted for the opportunity of figuring "Her Majesty," thus wrote a short time since in the *Gardeners' Chronicle*, upon this very interesting topic:—

"I feel certain that above half the number we are now growing are sports from other established sorts. Some varieties are more inclined to sport than others: the white and striped kinds are all of them disposed to do so; and from these almost all the colours we possess have been selected, grafted, and cultivated, and then generally introduced as seedlings.

"I remember that at some of the great shows last season [1863], I counted seven distinct varieties, all open at the same time, upon Admiration; some of them were very distinct and beautiful, and well worth preserving, while others were inferior to the parent in shape, and not sufficiently distinct in colour from those already in existence. On another occasion I saw a plant of Iveryana with seven distinct varieties upon it, and had the plant been mine I should have felt disposed to graft some of them. Alba Magna is another kind very much inclined to throw sports; and although the blossoms of the parent are thin and flimsy in texture, yet at times it will give off splendid sports of various colours, having the blossoms finely shaped and of good substance. Madame Miellez is a sporting lady; many fine varieties have been secured from this, and as its colours are distinct from most of the other white-ground varieties (being purple-striped instead of pink or rose), it has opened a wide field for sports of a very different character.

"Barclayana, I believe to be the mother, grandmother, or great grandmother of more new varieties than any other kind grown. It is really astonishing what extraordinary sports this will produce. I have had one small branch with three blooms upon it, all quite distinct,

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and none of them in the least like the parent. The most singular circumstance was this, that though there was but one small shoot bearing these flowers, yet, when multiplied, it yielded all three varieties."

Her Majesty, which is a sport from Madame Miellez, and one of those alluded to in Mr. Barnes's remarks, is one of the finest Azaleas which has yet been obtained, both as regards form and substance, while in colour and marking it is quite distinct from all others. The flowers are of the full average size, and the colour is a soft lilac-tinted blush more or less dense, white at the margin, thickly spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of colouring, will make it an acquisition in any collection of these showy plants. Mr. Barnes adds, "I have never seen anything like a spurious flower upon it; and it is also a strong, robust grower"—two qualities which add immensely to its value.

M.

SCARLET AND VARIOUS-COLOURED PELARGONIUMS FOR AUTUMN AND WINTER DECORATION.

It is somewhat surprising that we should so seldom find Zonale Pelargoniums and their allies specially cultivated for decorating the conservatory during the autumn and early winter months; not, certainly, because they are in any way unsuitable for such a purpose, as they yield to it with the greatest freedom. Chrysanthemums have long held at this season an undisputed position, and have been looked upon as inheritors of all that is desirable; but their reign of supremacy is drawing to a close, their infallibility begins to totter, and the class of plants which I have named will eventually take precedence, so that ultimately Chrysanthemums will exist only in a state of toleration. I have no desire to hunt them out of our greenhouses; rather would I allow those who love them to exercise their affection without control. With us, pot-culture has been discontinued, and we have handed them over to the clumps in the pleasure-ground, and borders of the kitchen garden.

What we so much require at this season is an array of warm colours, and the demand increases proportionately as the murky days creep on. Chrysanthemums cannot supply this desideratum, as they stand too far apart from the primary colours, therefore recede rather than advance towards the eye; but still we must not tolerate too great a preponderance of red and the varied modifications it produces, as excessive domination gradually ceases to engage the attention, and ultimately becomes wearisome. To reduce luminous colours to whatever standard may be most agreeable, the following varieties, and many more that could be named, will be found to meet any contingency:—Alexandra, Christina, Diadem, Eve, Emily Vaucher, Flora, Helen Lindsay, Léonie Nivelet, Madame Chardine, Mrs. Whitty, Mrs. William Paul, Prince of Hesse, Rosamond, Snowball, White Perfection, and Madame Rudersdorff.

It is somewhat singular, still it is quite true, that during autumn the different tones come out with greater brilliancy under subdued light and solar heat than during summer, although sunshine may be interrupted by constant attention to shading.

Zonale Pelargoniums are not the flower of a week or a month, for their

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duration extends from October till the end of December, and may be continued to a later date by a slight application of fire heat. I observe that your contemporary, the *Gardeners' Chronicle*, is beginning to ventilate this subject; and I feel certain that by this advocacy and that of the FLORIST AND POMOLOGIST converts will increase. I have practised autumn flowering for two seasons, and can therefore speak with the greatest confidence.

Very little requires to be said on the subject of cultivation, as with the most limited means this can be managed with ordinary care. When young plants are yearly employed, they should be rooted by the beginning of September, and shifted into five-inch pots by November. Now allow the plants to rest till the end of March; in the interim give an abundance of air, and just as much water as will keep the foliage healthy. By the beginning of April a transfer into a larger pot will be necessary, at the same time pinching off the extreme points, to cause the production of side shoots; these again to be manipulated upon in the same way about the middle of June; and thus, by attention to tying out the branches, the cultivator will be enabled to lay the foundation of a large plant. For the last shift, a pot 8 inches in diameter will be found sufficient, as one of the principal objects to be attained, and which will contribute greatly to an abundance of flower, is confined roots. Until the middle of September every flower-stem should be removed as soon as it appears, and the neglect of this precaution will reduce the strength of the plant. At no period must the plants be exposed, but be kept constantly under glass, and shaded from strong sunshine. The soil which I use is light loam, mixed with a third part of cow-manure, a year old, such as we employ for growing Balsams.

Tortworth Court. A. CRAMB.

CYCLAMEN PERSICUM.

THESE delightful winter and spring-flowering plants are particularly attractive just now, and come in very usefully with Ericas hyemalis, formosa, &c., Primulas, and other early-flowering plants, to make a little display at this dull season of the year. Last August I brought with me from the north two small plants that had recently been potted into 60-sized pots in a sandy peat soil, mingled with leaf mould. Occupying an airy window with a south aspect, they have grown nicely, and are now blooming freely. One has more crimson in the "eye," as it is termed, than the other; but there is a marked difference in the character of the foliage, the one having the leaves prettily blotched with a greyish white, whilst those of the other are quite plain. When the foliage is thus marked, as in the case of the former, they are still useful decorative plants, even when not in bloom.

The varieties of Cyclamen persicum are generally denominated the greenhouse kinds, and they vary in colour from snow white to delicate peach or light rose and rich rosy crimson, and some, again, are pure white upon a purple base, many of the latter being delightfully fragrant.

After the bulbs have done flowering in the greenhouse they should be placed in a cool, shady border for a period of rest. They should be screened from wet and from sunlight, for they require repose, not excitement. In the autumn they should be carefully repotted in peaty soil, and replaced in the greenhouse—a shelf near the glass is a good position—and there started

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into growth. No heat force should be applied, if it can be avoided, to aid the growth. Water should be given sparingly until they make active growth, and then it may be freely applied. They are easily managed in an ordinary window of a sitting-roon, as watering is the chief thing requiring attention; though, on the other hand, they must not be allowed to become "sogged," as some of the gardeners term it, meaning thereby, so thoroughly saturated with wet that the plants are injured.

Quo.

REMARKS ON FRUIT TREE CULTURE.—No. 16.

The young trees, prepared as before directed, may now be considered ready for lifting and transplanting into the prepared border—that is, supposing such border to be ready at the proper time, and that it is desirable to plant at once; but if the trees are not cramped for room in their present quarters, and there is no other urgent cause for their removal, they will be quite as well, and even better, if left another twelve months. In either case the necessary manipulation of the branches will be the same, but the effects different; in point of fact, this is the starting stage at which it will be necessary to determine the sort of treatment to which it is intended to subject the tree.

In the first place, if removed at this stage of growth, the necessary lifting and transplanting will produce just that sort of check which will induce the formation of fruitful wood and spurs; but, on the other hand, by leaving the tree in its present position another year, and encouraging a free development of growth, great additional strength will be gained, together with an almost equally near approach to the fruiting condition of growth. The question, therefore, arises as to whether it is desirable to commence at once a course of treatment which will tend towards the production of a precocious development of fruit, or whether, as is allowed to be best in the animal economy, the child shall be allowed to gain additional strength before being put to perform the heavier parts of the labour of life. The reply to the question must be determined by the bearing of various contingent circumstances. If, for example, time is an object, and it is desirable to have as much return of fruit as possible from a limited space, it will be necessary to commence at once that course of treatment which will prevent a free development of woody growth, and encourage weaker and more fruitful wood; but as, when this is the case, it will be necessary, in order to carry out the system thoroughly, that the range of the roots should be considerably circumscribed, I will not at present enter into that part of the subject, since the bearing of my present remarks is confined to trees which are to be transferred to a large and well-made border, in which there is ample room for the development and range of the roots. I also pre-suppose ample head room, because it will be of very little use to go to the expense of forming such a border as the one I have described if it is not intended to give ample room for the development of the branches as well as the roots; not but that in such a case it may be quite possible, by a judicious application of the curbing system to the growth of the tree, to keep it within circumscribed bounds, but it would be an unprofitable manner of expending labour, for the same end may be attained to a much greater profit with far less labour and expense.

There is much to be said in favour of an ample space for both roots and branches. I believe that one tree favourably situated in this respect, with

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careful management, would yield a much more profitable return of fruit than would be obtained from three trees crowded into the same space. It may not be so immediately profitable, it is true; but this, if an evil, is one which will soon cure itself, and the healthy free-growing tree will be much longer-lived, and more generally productive, so that in the long-run it will completely distance even more competitors than three.

It is astonishing to what an extent a well-situated Apricot tree will develope itself when there is ample room for it both above and below; it is certainly rather unmanageable for a few years, but is none the worse for that, for with judicious management it soon settles down, as it were, to its work, and then it appears to revel in growth and fruit-bearing; the fruit, too, from such a tree is large and finely grown, in one place thrusting itself out into the full rays of the sun, and in another hiding itself in great abundance beneath the luxuriant foliage in a manner most pleasant to behold, and showing forth how much a bountiful Providence will enable it to produce for our benefit when our treatment is more assimilated to the natural tendencies of the tree, instead of shutting it up within a certain space, and saying, "Thus far must thou go, but no farther." I do not for a moment deny the absolute necessity there is in many places for following out the restrictive system of culture, but I think it may be carried too far, and that we shall be apt to lose sight of the many advantages attendant upon a more free and natural development; and although, by constantly checking and curbing the endeavours of the tree to extend its growth we obtain more immediate returns of fruit, we do so at the expense of the real strength of the tree, and in the course of time the want of stamina will tell; and when exhaustion induces decay, and a consequent necessity for renovation, our healthy, well-developed tree will still be pouring forth its increasingly abundant produce, and, I have no hesitation in asserting, would see out more than one generation of trees confined to a space barely sufficient for vegetation, let alone a free development.

Redleaf. JOHN COX.

ON CONIFERS.

As ornamental trees, Conifers are peculiarly valuable for the verdure of their foliage, which, unchanged by the severity of the seasons, is beautiful at all periods, and especially so in winter; for the great variety of outline and form which many of them assume when fully grown; and for the shelter they afford in cold, exposed situations. During three or four months, when the landscape is bleak, these beautiful trees give an appearance of verdure and life to the scene, which robs winter of half its dreariness. Though a taste for Conifers is spreading silently through the country, it is not advancing with anything like the rapidity which they deserve.

The earlier planters of Conifers fell into great mistakes by planting them in low, confined, sheltered situations, and too closely together. It was customary to form a pinetum, and, as a matter of course, as many kinds as possible were got together. It was no wonder, then, that many of these trees, natives of the mountainous regions of the old and new world, should in such situations be drawn up weakly and tender, that the growth should be soft and unripened for want of a free circulation of air, and that they should suffer severely from the frosts of winter. I have little hesitation in

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saying that more disappointments have been caused by planting in low confined situations than from any other cause whatever.

Having, during the last eighteen years, planted several thousands of Conifers here, some account of them may be interesting to many of your readers.

Being on the red sandstone formation, we have a good soil, which is a matter of great importance in tree culture. The park and grounds are very beautifully undulated, so that there is a great variety of situations. The park is well wooded. In part of it there is a greater number of old Oaks of greater girth of bole than perhaps can be found in the same area in any park in England; there are also some magnificent Beech trees in the same locality. There is a nice variety of soil; that on the hilly parts is of a sandy or gravelly character, and in the valleys and low places it is of a strong clayey nature. A portion of the pleasure grounds between the mansion and the lower lake, being on the eastern side of the park, is much exposed to the western gales; these are the greatest enemies we have to contend against, and they sometimes sweep with terrific fury over the grounds. In the most exposed places we have planted such kinds as stand the winds best. Abies Douglasii suffers much on the side open to the wind. The great beauty of this tree—and the same remark applies to all other Conifers—is when it is well furnished from top to bottom all around, and its fine, long, sweeping, feathery branches hang down in a graceful and pleasing manner to the ground. If sheltered from the strong west winds, the situation for Conifers can scarcely be too open or exposed, most of them being natives of mountainous regions. Here there has been no attempt at making a pinetum. We have planted all over the grounds and park most of the sorts that stand the winds and severe frost of winter best. There are no very large specimens, but there is a great number of very fine young flourishing ones. All the kinds grow well here, but the more tender sorts will not stand our winter.

Before describing the specimens I will offer a few remarks on the choice of subjects for planting. I have planted them of all sizes, from 6 inches to 6 feet, and with great success. I have planted hundreds that were grown in pots, and thousands that were grown in the open ground. I do not recommend the planting of large specimens unless immediate effect be a great desideratum, as, no matter how carefully they may be transplanted, very great attention is required afterwards to ensure their well-doing. Young, robust, healthy subjects are far preferable to large ones, when well-furnished, handsome specimens are desired. If the ground be properly prepared, young plants soon make handsome specimens.

With regard to the question whether plants grown in the open ground or those grown in pots are the better, I think it matters little, if the plants have been properly managed—that is, if those grown in the open ground have been annually transplanted, and those in pots have been shifted regularly into larger-sized pots before the roots could become matted. Where large, fine, handsome, healthy specimens are the main object, I would always advise the use of young plants, whether from the open ground or from pots, for when large trees are transplanted they require to be well secured against the wind, and need great attention in other respects to ensure their well-doing. I have seen plants that were grown in pots so pot-bound, and the roots so much cork-screwed, that it was almost an impossibility for them ever to make good specimens. I have seen others grown in a stiff clay and that were not transplanted for some years; they were fine plants at top, but when

lifted had not a single fibre, only two or three prongs—such plants it was almost an impossibility to keep alive during dry, hot springs. These, I admit, are extreme instances of both systems. I have nothing to say against trees grown in the open ground when properly transplanted annually, so as to get them to move with a good mass of fibres—I like such plants. I have no objection to those grown in pots, if they are regularly shifted before they become pot-bound. People too generally run from one extreme to another. I know well what kind of things Conifers were in former days, when kept cramped up in pots for years, without being shifted. The carriage of plants was then a serious consideration, before railway communication became so complete all over the kingdom; and to add to the evil of being cramped in small pots, many of the plants in those days were grafted ones, and in some instances worked on very bad stocks. It was very little wonder that such trees when planted out should, instead of starting into vigorous growth, languish for a brief period and then die, to the disappointment of the planter. Surely, to attribute their failure to being grown in pots is very wrong. It was the abuse of the system, and not the system itself, which, if properly carried out, would have ensured most satisfactory results. I believe myself that plants grown in pots (of course I mean small plants, not exceeding 3 feet high), when properly managed, to be as good as those grown in the open ground; and they have this advantage over the latter, that they can be planted out at any season of the year without requiring a fourth part the attention afterwards that late spring-planted trees from the open ground do. Those who have had any experience in planted Conifers well know how trying the hot sun and drying winds are to late spring-planted Conifers from the open ground. When grown in pots they can be safely planted out in the early part of June, after all danger from frost and cold winds is past. If they get a good soaking of water then, they will need little attention afterwards. As I have already said, I like plants grown in the open ground if they have been well managed, and are lifted carefully; and I like plants in pots (small plants) if they have been properly managed.

All nursery land is not suited to the growth of Conifers. When this is the case it is much better to grow them in pots than in the open ground. Whether grown in the open ground or in pots, I would strongly recommend young healthy plants, not exceeding 3 feet high, as preferable to larger plants, when well-grown handsome specimens are required, the ground being in all cases well prepared.

Stourton. M. SAUL.

(*To be continued.*)

RAISING SEEDLING LILIUMS.

LAST year (1865), I crossed Lilium speciosum with the pollen of two distinct varieties of L. auratum, both marked with dull crimson bands instead of yellow, and some fine pods of seeds were ripened on L. speciosum. The two varieties of L. auratum were crossed with pollen from L. speciosum, and they likewise ripened good seed to look at. All the seeds of the two sorts were kept separate, and sown in pans in a warm pit in March last. I was surprised to see no signs of any young plants appearing till it was far advanced in summer, and then only about seventeen showed their tiny leaves in the pans of the auratum varieties. Lately a few of the speciosum seedlings have appeared above ground, and on scratching down into the soil

I have found in all the pans hundreds of small bulbs, that have formed from the seeds and never showed leaves at all, or at least till now. Raisers of Liliums from seed, if disappointed in their plants not appearing above ground, had therefore better examine the soil to see if any young bulbs are forming below.

Welbeck. WILLIAM TILLERY.

ON ASTERS.

"I CANNOT get good Asters, somehow," said a discontented horticulturist the other day; "what I get are generally just so much rubbish, and nothing more." He went on further to say that he obtained the very best of the imported varieties, so far as he could judge of their quality, but "they never pleased him." And then he went off into a denunciation of seedsmen, as if they had all conspired to cheat him, worthy soul, and tinge with bitterness his Christmas festivities. There is a good deal of this abuse of seedsmen going on at times; they are made the scapegoats for many an ignorant and indolent gardener, just as if seedsmen had no reputations to lose or good names to peril.

My good but complaining friend had his Asters from a most estimable man; but he had been so attracted by the splendid quilled varieties that Mr. Betteridge used to exhibit, that he could see no merit in any others; he had constantly before him those magnificent quilled flowers, perfect in form, the quilled petals regularly ranged in a series of unbroken circles, clean as a Picotee, and strikingly beautiful. He had a keen eye for the symmetry of a flower, and one of Mr. Betteridge's quilled Asters was to him an example of the very acme of form; but he was not aware of the "mysteries" of exhibiting flowers. He knew nothing of trenches richly manured, of copious libations of liquid manure having a most unmistakeable "body," of careful shading, and a process of disbudding that to him would have appeared something akin to extermination. I took compassion on his peace of mind, and kept this from him. Then he had very antagonistic influences to contend against. His ground was very cold, clayey, and much exposed, and he thought lightly of liberal dressings of manure; and he failed, as any one must inevitably fail, in producing quilled Asters under such adverse circumstances.

Such a case is a kind of text on which to found some advice to growers of the Aster, who may also have come short of their expectations. First, then, grow but few quilled Asters, and of these a good strain of what are denominated German quilled, will be the best. Secondly, grow the following for the sake of their great beauty, their large size, and for their freedom and continuity of bloom:—

Victoria, a magnificent strain, having broad, flat-petalled flowers, well reflexed, none of them being incurved, or only in very exceptional cases. The flower-heads are of great size, very double, and of distinct colours; of free-blooming compact habit, and growing from 12 to 18 inches in height. For exhibition purposes this variety can hardly be surpassed.

Dwarf Chrysanthemum-flowered, which has a very dwarf, close habit, and is one of the latest in blooming. It grows from 6 to 9 inches high, and flowers remarkably freely, and, like the tall variety, the flower-heads are reflexed. It makes a very effective bed when fine weather prevails, and it is one of the very best for pot culture. There is also a good variety of colours.

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Truffaut's Pæony-flowered Perfection, which is one of the finest and most striking of the French improvements of this flower. This variety grows from 12 to 18 inches in height; the flower-heads are large and very double, they afford a good diversity of distinct colours, and are produced both in the incurved and reflexed forms. It is also a very fine sort for exhibition. To these three of the flat-petalled kinds add

Boltze's New Dwarf Bouquet Double, which is the very best of the dwarf Asters. It is very dwarf, growing about 6 inches high; the flowers are all bi-coloured, and yield a great variety of colours; small flat-petalled blooms, and very freely produced. It is exceedingly pretty, would make very attractive beds, and is suitable also for pot culture.

It may be assumed as a general rule that the flat-petalled Asters are hardier in constitution than the quilled flowers, and are much more effective under ordinary circumstances: therefore it is that I have given a greater prominence to these.

Let the amateur grower sow his seeds early in March in a cold frame if he can—that is, sow his seeds on a bed prepared in the frame; and as soon as the weather will permit, if they can be transplanted from the seed-bed to a warm and sheltered position for a time, so much the better. Let him be assured of this fact, when preparing the ground in which he wishes to bloom his flowers, that it should be liberally dressed with manure, and in dry weather he should not spare the watering-pot. If his plants are for garden decoration only, let them carry all the flowers they produce; but he should see that there be something at the roots to maintain them, such as a mulching of dung, or some liquid manure in scorching weather. If he desires to take a good position at the local exhibition, he should disbud a few of his strongest and best plants, and give them some liquid manure. It is surprising how fine Truffaut's Asters will come under very ordinary treatment; but with a little stimulus added to the roots, flowers can be had that will gratify the grower, and bring him victory on that nobly-contested battle-field—the exhibition table.

E. W.

THE COLOURING OF GRAPES.

Gardeners have both heard of and seen Grapes badly coloured, especially Black Hamburghs. Some ascribe the fault to bad supplies from the roots, others to the want of sufficient sunshine, or light and air; but neither seems to be the chief cause, for large berries badly coloured may be seen upon very strong Vines, and the reverse on weak ones. In former days, when Vines were not so highly cultivated, and grown under green or dark glass, there were fewer complaints of Grapes being red instead of black.

I have been long of opinion that the chief cause is to be traced to injured leaves and unripe wood. In such cases the supply of crude sap from the roots is not properly elaborated in the unhealthy leaves, nor in its way through the immature vessels in the green wood, on which the bunches hang. When this happens, I leave the laterals or young shoots beyond the bunches, instead of pinching them off, in order to encourage the Vines to gather or produce more nourishment for the fruit. I have noticed this before in these pages, and may have observed that there need be no fear of both the fruit and wood not ripening under the shade. For instance, the blackest Cherries are found under the shade of leaves; and without a proper

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supply of such the young fruit on trees and Vines may remain green, until blackened by frost. I should remark, that neither extra heat nor sunshine has much influence on the unripe wood of Vines after the proper time of their growth is past. Hence the inutility of placing Vines in pots out of doors in the full sunshine, after the crop is over, with the view of ripening the wood. Instead of this, the leaves are scorched, and thus all chance of their influence on the wood is gone, and on the condition of this the success of the next season's crop greatly depends.

Cossey Park. J. WIGHTON.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

December 4th.—These winter meetings, held during the cold, dull days, are about the most enjoyable of all the meetings of the Committee. Of all wretched-looking places during the depth of winter, what can be more so than a great city like London, with its bare trees, soot-coloured buildings, and fog? and how pleasant to pass in from these to a large room bright and glowing with flowers of apparently greater beauty than usual, because so welcome. Just such a delightful experience as this occurred at the above meeting. Those glorious Orchids from Mr. Anderson, of Meadow Bank, Glasgow, were quite horticultural sensations for the moment. What a marvellous example of the costly and rare Odontoglossum Alexandræ, about which Mr. Bateman said that not only were the flowers "the finest that had ever been shown in this country, but that no such beauty as they exhibited had ever been approached even in the countries of which it is a native." Mr. Anderson also exhibited a spike of Cymbidium giganteum, with eleven expanded flowers, blossoms of Cattleya marginata, and some beautiful varieties of Lycaste Skinneri, including a white one, which received a first-class certificate. A white variety was also shown by Mr. W. Marshall, of Enfield, and had the same award. In each case the flowers had a lemon throat; but the white in Mr. Marshall's variety was purer and more chaste, but then the throat of Mr. Anderson's variety had more lemon. At any rate they are both valuable acquisitions. Messrs. Veitch & Sons exhibited a splendid new Saccolabium, which they had imported from India during the spring, under the name of S. giganteum, but which proved to be a new species, and has been named S. densiflorum. It is a great improvement on S. violaceum, and it is evidently a free grower and an abundant flowerer, besides being most delightfully scented. The credit of its introduction is due to Colonel Benson, of the Indian army. It was awarded a first-class certificate.

Mr. Standish, of Ascot, also had some good things. Foremost was a seedling Aucuba japonica, a perfect hermaphrodite, having the organs of both sexes combined in the flowers. This is a very happy result, as it will prevent the necessity of artificial fertilisation, provided the peculiarity can be perpetuated. Mr. Standish also had a new variety of Taxus adpressa, named stricta. It is a free-growing plant, with a better habit than the old variety, and throws a good leader. It was awarded a first-class certificate, and a similar award was made to Saxifraga tricolor, also from Mr. Standish. It is a very dwarf, close-growing kind, with leaves which have a green blotch in the centre, broadly margined with creamy white, and edged with pink, the under side of the leaves being of the same colour. It came from Japan, had been grown by Mr. Standish on a shelf in a cool house, and was planted in very poor peat. The foliage is very handsome.

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Mr. Bull had a pan of Selaginella denticulata variegata, which is really a very handsome Lycopod; and Mr. Turner, of Slough, a basket of seedling Ferns from Adiantum Farleyense, in which appeared some four or five distinct varieties, a difference in the formation of the leaflets being discernible. Nearly every frond of the plants had an abundance of spores.

Mr. Paul, of Waltham Cross, exhibited a number of trusses of Zonale and plain-leaved Pelargoniums, mostly of Beaton's race, to show what admirable subjects they may be made for winter decoration. The following mainly comprised the collection: — Bride, White Perfection, Madame Vaucher, Pillar of Beauty, Minstrel, Monte Rosa, Sir J. Paxton, Banneret, Cardinal, Naiad, Double Tom Thumb, Beauty of Waltham, Tiara, Peach Blossom, Amy Hogg, Duchess, Nimrod, Crimson Queen, Dr. Hogg, Ossian, Fulgens, Wood Nymph, Dr. Lindley, and Prince of Orange. Mr. Paul says that in order to get plants to bloom at this season of the year, young plants should be taken in May or June and be repotted into larger pots, "as the roots fill the pots they occupy, till the end of July. Pick off the trusses of flower before expansion during June, July, and August, encouraging a free growth, till by the end of September the plants are covered with new trusses beginning to expand. Now, wherever the plants may have been grown, whether out of doors or in-doors, remove them to a light, airy house, continuing to water freely, and using just so much artificial heat as may be necessary to dry up the moisture of the house, which, if in excess, damages the flowers. Do not water the leaves, or spill water about the house. Give plenty of air in fine weather. By following this plan, certain Pelargoniums may be had under glass at midwinter as gay and beautiful as in our parterres in summer."

For the Fruit Committee were produced some White Spanish, Brown Globe, and Danvers Yellow Onions, by Messrs. Wrench & Sons, said to have been grown in Bedfordshire—by the way, rather sorry specimens from so celebrated a locality for Onion culture. From Mr. James Douglas, gardener to F. Whitbourn, Esq., came two splendid Pine Apples, one a Charlotte Rothschild, weighing 8¾ lbs., the other a Smooth-leaved Cayenne, weighing nearly 7¾ lbs. From Mr. Smalley, The Gardens, Norton Hall, Daventry, came a spike of the fruit of Bromelia Commelyniana, measuring nearly 2 feet in length. It was said that in structure it was "a veritable Pine Apple, but each pip was separate instead of being united in a fleshy receptacle." The pips looked like medium-sized yellow Plums, and the flavour was pleasant without much richness. Mr. Cox, of Redleaf, had a collection of Apples, among which were some good examples of Blenheim Pippin and Golden Reinette.

R. Dean.

MACLEAN'S LITTLE GEM PEA.

"The cry is still 'They come,'" is as applicable now to the new early Peas as it was in the mouth of Macbeth in his reference to the oncoming of the army of old Siward. Another is this season added to the already-too-numerous list—namely, Taber's Perfection, which has all the qualities, and a good deal more besides, not clearly defined, judging from the long list of testimonials that heralds it. These varieties, of which Dillistone's Early is a type, have nothing but earliness to recommend them; they are neither heavy nor continuous croppers, and as for flavour, but little can be said about it. Now, during the recent discussion anent early Peas, it

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was contended by more than one writer that the old dwarf Beck's Gem, or, as it is as widely known, Tom Thumb, was one of the very earliest of all. This variety grows about 1 foot high; the pods are short, and not over-plentiful. This Pea is now completely distanced, to use a racing phrase, by Maclean's Little Gem, a variety very like Beck's Gem in regard to height and earliness, but which, being a wrinkled Marrow, is a prolific cropper, with good pods, too, and the habit is strong and lusty; and then it has that great quality of all—flavour. It is as yet somewhat scarce; but now that its qualities are being recognised by the trade, it will soon be taken in hand and largely grown. I hear that it is largely used at Sandringham, and that Mr. Turner will shortly publish a *bonâ fide* testimonial that has emanated from Royalty. There is no reason, I imagine, why this Pea should not be had at Christmas, if sown, say, in August, and grown on in a forcing-house, or any other appropriate place. I do not go so far as to say that it would be safe to sow it out of doors as early as one would sow the hardier round kinds, but, weather being at all favourable, it certainly does turn in early. Seed of this variety is somewhat scarce this season, owing to the wet summer; but those who can obtain it should grow it as a first early Pea, giving it a sheltered warm position and good soil, and they will have no reason to regret having espoused it.

E. W.

ERYTHRINA CRISTA-GALLI.

To see this fine old plant in perfection, it ought to be planted out of doors in some dry warm corner or border, and if a little bottom heat could be secured for it by a hot-water pipe or flue crossing beneath, all the better. In the old gardens at Welbeck, there was a border between two Pine-stoves or pits, and a pipe for steaming-purposes ran across at a depth of 2 feet. This border was planted with three or four Erythrinas which had formed very large stools, and when in flower constituted one of the most gorgeous masses of floral beauty that I have ever seen. I have counted as many as thirty spikes, many of them 18 inches long, all in flower at once; and with the fine foliage of Cannas and other plants clustered around them, the whole formed a sight worth looking at. Every autumn the stools were covered over with a foot deep of old tan, and this covering was not removed till May or June in the following year.

Welbeck. WILLIAM TILLERY.

NEW ROSES.

Monsieur Chaix d'Est-Ange (Levêque et fils).—Vigorous. Flowers large, very full, bright red.

Monsieur Noman (Guillot père).—Raised from Jules Margottin. Vigorous. Flowers large, full, delicate rose, bordered with white.

Monsieur Plaisançon (Ducher).—Very vigorous. Flowers very large, full, globular, of fine form, deep carmine.

Monsieur Thiers (Trouillard).—Vigorous. Flowers large and very full, of regular outline, fine brilliant red.

Panaché du Luxembourg (Soupert et Notting).—Very vigorous. Flowers medium-sized, full, of fine form, purple and violet, striped with salmon rose.

Paul Verdier (C. Verdier).—Vigorous. Flowers large, full, finely imbricated, magnificent bright rose.

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Président Porcher (Vigneron).—Vigorous. Flowers very large, full, beautiful clear rose, shaded with carmine.

Rose Perfection (Touvais).—Vigorous. Flowers very large, full, of fine form, brilliant deep rose. Very sweet-scented.

Sœur Thècle (Fontaine père).—Vigorous. Flowers large, full, of fine form, rosy carmine, with a silvery edging.

Souvenir de Monsieur Boll (Boyau).—Vigorous. Flowers very large and full, of very fine form, shaded cherry red.

Thorin (Lacharme).—Vigorous. Flowers large, full, of fine form, pure bright rose.

Triomphe de Soissons (Fontaine père).—Very vigorous. Flowers large and very full, of very fine form, beautiful flesh-coloured rose, shaded with salmon.

Ville de Lyon (Ducher).—Very vigorous. Flowers very large, full, and finely formed, deep rose.

The most promising new Tea Roses appear to be:—

Bouton d'Or (Guillot fils).—Vigorous. Flowers medium-sized, very full, fine deep yellow, reverse of the petals white.

Madame Brémond (Guillot fils).—Vigorous. Flowers large, full, varying from light reddish purple to very dark purple.

Madame Margottin (Guillot fils).—Very vigorous. Flowers large and very full, globular, deep lemon, with a rosy peach centre, and the petals edged with white.

Monsieur Furtado (Laffay).—Vigorous. Flowers medium-sized, very full, and well formed, beautiful clear sulphur yellow.

Of Bourbons, only two are offered, viz.:—

Œillet flamand (Oger).—Plant vigorous. Flowers medium-sized, full, flat, bright rose striped with pure white.

Petite Amante (Soupert et Notting).—Plant very vigorous. Flowers medium-sized, very full, clear rose, carmine on the back of the petals.

ENDIVE.

The following particulars respecting the cultivation of Endive, as practised at Meaux, in the department of the Seine-et-Marne, are abridged from an article by M. Quetier, in the *Revue Horticole*. It would be impossible, he remarks, even to give an approximate estimate of the quantity of Endive consumed in Paris, and of which a very large proportion is produced at Meaux. The Endive grown there is of particularly good quality—a circumstance, perhaps, partly to be attributed to the soil, but still more to good culture and the care taken in the choice of seed. Some of the growers produce as many as 60,000 or 80,000 plants each, and most of the others not less than 40,000 to 45,000.

The market gardeners of Meaux do not force Endive, because they find it too expensive. They commence by sowing under a frame on a brisk hotbed in the beginning of April, for in order to make sure that the plants shall not run, the seed must come up ten or twelve hours after sowing. When the seedlings are strong enough to prick out, plenty of air is given to harden them off, and they are planted out of doors in nursery-beds in a good aspect. The plants suffer a little from this proceeding, for the ground in the first fortnight of May is very cold as compared with the soil

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of the hotbed, but they soon recover from the check if the weather is warm; on the other hand, if it is not so, they are some time before they become again established. The final planting is made successively, choosing the strongest plants, and thus a successional production is secured.

Sowings are made out of doors from the first fortnight in June. The precise time varies some days, according to the warmth of the season; and the fact must never be lost sight of, that if the ground is not warm enough the plants will be apt to run to seed. Afterwards sowings are made every fortnight; the seeds are sown very thinly to avoid pricking out into nursery-beds, and the plants are thinned out as soon as they have made their first leaves. The main winter sowings are made from the 10th of July to the end of that month, at intervals of a few days, in order to secure a succession.

The market gardeners keep but little Endive through the winter, for their buildings are too small, and they could not bestow upon it the necessary degree of attention. It is in private establishments, almost exclusively, that Endive is kept during the winter, and in these the usual practice is to take it up with a fork before frost, in the end of October, in November, and sometimes even in December if there has been no severe frost, and, pressing the ball about the roots with the hands, to place it in a cellar or under a frame. In the first case the plants are planted close together in sand, and in the second in old leaf mould, and they soon become blanched, but do not remain long fit for use. M. Boulingre, however, a gardener at Chauconnin, showed the writer Endive in excellent condition in April. He lifts his Endive on a fine sunny day, and with as large a ball as possible, places it in an airy shed, but does not press the plants closely together, and after some days, when they are dry, he takes them into a cellar where there are shelves one above the other, about 14 inches apart. On these he places some very dry wheat-straw, and on this the Endive plants, heads downwards and rather closely together, but the air which circulates among them prevents their rotting. Every fortnight the Endive is looked over, and any that may chance to be rotten is removed, and any straw that may be damp is replaced with fresh. If, notwithstanding, there is a strong tendency to rot, the ball of earth is cut through the middle so as to take off the roots which pump in the moisture from the air and occasion the rottenness. The external air, particularly in winter, being full of moisture, must be excluded from the cellar, and every time this is entered the door must be at once shut; all crevices, likewise, by which air could find its way in, should be made air-tight. In this way M. Boulingre keeps Endive till the end of April, by which time that which is forced comes in.

GARDENING NOTES DURING THE YEAR 1866.

It often strikes me that gardeners might soon make a reform in the "fat catalogues" now yearly issued by seedsmen, by only ordering seeds of a few of the best varieties of each kind of flower and vegetable, and especially those which they have found best adapted to their soil and situation. By selecting the best varieties of Peas, Beans, Cauliflowers, Broccolis, and of annual and perennial flowers, and rejecting all doubtful, new, and synonymous sorts, the seed-growers would soon find that it would not pay them to grow so many kinds merely to swell their lists.

The cultivation of spring flowers has progressed considerably in the past

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year, and no place of any pretensions can now be said to be complete without its spring flower garden. The cultivation of hardy spring flowers is easy, for most gardens have a north border where a small strip of light soil can be made artificially next the wall, and there in the summer months Pansies can be struck, and Daisies, Aubrietias, Primroses, and other things can be increased by division. Seeds of Myosotis, Silene, Wallflower, Stocks, and other hardy annuals and perennials can likewise be sown in odd places in the kitchen garden, or in shady places between Asparagus-rows. Spring gardening, if carried out systematically, as at Cliveden and some other places, does not materially interfere with the summer bedding-out system, but rather heightens the pleasure of our employers by affording them such a long succession of floral gaieties to admire.

The past season has not been one of the best for summer bedding plants, but some acquisitions have been planted out which will figure conspicuously in another year. Amongst the most interesting are the new strains of Nosegay Pelargoniums, first introduced by the late Donald Beaton. From their pleasing change of colours and profuse flowering they are unequalled for decorative purposes, and will help to tone down the many vulgar scarlet varieties which formerly used to set our parterres in a blaze. The Iresine has done better this wet autumn, and has, therefore, been brought prominently into notice again; but, after all, it wants good management, and can only be recommended for a late display in autumn. Where Coleus Verschaffelti, Gibsoni, and Amaranthus melancholicus do well, they will always beat it in the summer months. The new Alternantheras and Teleianthera ficoidea where bedded out this season have not flourished satisfactorily, and will, perhaps, require a further trial before they are condemned. The Alternanthera paronychioides seems to be the best of the lot, and may yet prove to be an acquisition. Viola cornuta is a really good thing, but it is highly amusing to read all that has been lately promulgated about its history. I believe it will be found that there is only one variety after all, and that the soil or cultivation has made the difference in its colour or habit, if there is any. I have likewise reason to think that it will cross, and vary in colour and habit when raised from seeds.

The cultivation of that gorgeous flower, the Gladiolus, is extending, and I hope that it will continue to do so still more in future years. In August and September, 1865, the weather was most favourable for the seeding of this plant, giving us a chance to equal the French growers in raising new seedling varieties. I had a long border this spring sown with seeds saved from the best sorts in 1865, and have lately lifted them, and they nearly fill a bushel with small bulbs as large as Peas. Some of the best seeds saved from the high-priced varieties were sown in boxes and grown in a Peach-house during the early part of spring, but the bulbs of those grown in the open air are quite as large and plump. A seedling of a new type, raised from Monsieur Blouet, flowered with me last summer; it is of a light rose colour, with the petals so rounded and nearly of a size, that it is, in fact, quite a florist's flower in shape. This variety I have crossed with some of the best-formed, high-coloured and light varieties, and hope to raise some seedlings with first-rate-shaped flowers and spikes.

In many gardens, owing to the wet summer and autumn, the late Grapes planted in the outside border, and not protected at the roots, have shrivelled or shanked, and will not keep so long as usual. Some good growers have never been able to colour their late Muscats properly, and these are therefore devoid of flavour, and damp off rapidly. The latest vinery here is planted with West's St. Peter's and Lady Downe's, which are planted inside the house. In August I had wooden shutters put on the outside border, and the Vines do not seem to

have suffered as yet from the continuous rains. Last year the Grapes in this house were plump and good till the 25th of April, and they promise to keep as late this year. In my opinion the Black Monukka is a very interesting Grape on account of its peculiarly rich sweet flavour, and small, heart-shaped, seedless berries. One plant is enough in a collection, for the berries are very small, and only adapted for using in jellies. The bunches are very long, and furnish a number of small shoulders for cutting for jellies, and the berries when tasted are very vinous and rich; the flesh is so crackling that the skins and all can be eaten.

There has been rather a failure this year amongst fruit trees in pots, for in some large unheated orchard-houses the severe frosts in April and May injured the blossoms. In lean-to narrow structures, or glass-covered walls, the trees have escaped better, as the heat radiated from the back walls raised the temperature high enough to keep the frost out.

On the whole, the progress of horticulture and floriculture in 1866 has been satisfactory, and the great International Horticultural Exhibition made the year quite a red-letter one to every gardener who saw the wonderful collection of plants exhibited at South Kensington. Another feature of the year is that gardeners have now three reverend gentlemen devoted to their interests; one taking charge of the Roses and Strawberries, the other of the florists' flowers, and the last of the bedding plants; and we gardeners have to thank them for the example they show us, as well in the truthful value of their opinions on gardening matters as in the polished style and freedom from personalities exhibited by all the articles which they contribute.

Welbeck. WILLIAM TILLERY.

OUR CONTEMPORARIES.

THE following plants are figured and described in the BOTANICAL MAGAZINE for December:—

Cypella cærulea.—A beautiful stove Irid, from Brazil, long known in this country. Its leaves are from 3 to 6 feet long, and 1 to 1½ inch broad, linear-lanceolate or sword-shaped, and bright green. The flowers when full-sized are 4 inches in diameter, blue, with yellowish claws, banded with brown and orange.

Heliconia humilis.—"Few plants," says Dr. Hooker, "are so well worthy of cultivation, for those who can afford space for the purpose, as the species of Heliconia; they are easily managed, their beautiful foliage is evergreen, their brilliant flowering-bracts keep their colour for many weeks, and they may be rapidly increased by division of the rhizome." Heliconia humilis is a native of Guiana, where it abounds in marshy places, and was figured by Jacquin so long ago as 1797. The leaves have slender petioles 2 or 3 feet in length, and the blades are 1 to 2 feet long and of a pale green. The spathes, of which there are generally four to each scape, are about 9 inches long, scarlet, with green points, and very showy.

Cypripedium Schlimii.—A pretty New Grenada species, named after M. Schlim, one of M. Linden's collectors, who found it in moist places in the neighbourhood of Ocana, at an elevation of 4,000 feet above the sea; and it was subsequently met with by Purdie on, it is stated, dry banks near La Cruz. The sepals and petals are about an inch long, white, and the latter are marked with streaks or spots of crimson on the inner side, and a faint dash of crimson behind; the lip, or slipper, has a large blotch of deep rich crimson in front.

Heliotropium convolvulaceum.—This, the *Euploca convolvulacea* of De Candolle's "Prodromus," is an annual, growing from 9 inches to 2 feet high, a native

of the southern United States, New Mexico, and Arkansas, on sandy plains, in which last state it was discovered by Nuttall. The flowers are numerous, salver-shaped, about an inch across, white, sweet-scented, and open towards evening. The plant figured was grown by Mr. Thompson, of Ipswich.

Lycaste gigantea.—"This stately Lycaste is very extensively diffused, having been found in Central America by Hartweg, near Santa Martha by Purdie, and in the forests of Merida, at an elevation of 5-6,000 feet, by Linden. As might under such circumstances be expected, there are many varieties, differing in the size and colour of the flowers, and also, though to a less extent, in the size and form of the sepals and petals; the latter are usually of a yellowish olive, while the velvety lip is of a dark rich maroon, bordered with orange. All the Lycastes may be regarded as sub-terrestrial, and should therefore be accommodated with large pots. They are readily grown in a moderate temperature, but prefer the shadier parts of the Orchid-house. With the exception of Lycaste Skinneri, now such a universal favourite, L. gigantea is, perhaps, the best of its race." The pseudo-bulbs are very large, being sometimes 6 inches high, and bear two or three leaves 18 inches to 2 feet in length. The flowers have yellowish olive sepals and petals, and a rich velvety maroon lip, with a narrow bordering of orange.

Combretum micropetalum.—A showy climber, a native of Brazil, which has been long cultivated by Dr. Moore in a greenhouse at Glasnevin, where it flowers profusely every year in September. The flowers are densely crowded in racemes 4 to 5 inches long, with yellow stamens three-quarters of an inch long, and orange anthers.

The FLORAL MAGAZINE for December has plates of

Siphocampylus fulgens.—A stove plant from South America, which produces a long succession of orange-scarlet flowers, with a yellow throat: hence it is believed that it will prove very useful for cutting for winter bouquets, as well as for the decoration of plant-houses.

Delphinium Triomphe de Pontoise.—A pretty French variety, with good spikes of button-like blue and white flowers, in which the petals are very regularly laid over each other.

Nosegay Pelargonium Duchess of Sutherland.—This fine variety has been already noticed more than once in these pages.

Lobelia Progress.—A showy purplish crimson variety.

OUR MONTHLY CHRONICLE.

PARIS UNIVERSAL EXHIBITION.—Of the 52 acres of ground which the Commissioners have taken for showing agricultural machinery at work, and for other purposes requiring a greater amount of space than can be afforded in the Champ-de-Mars, it was intended to have devoted somewhat less than 1¾ acre to a model market garden in which the different vegetables sold in the Parisian markets would have been exhibited in a growing state by the Market Gardeners' Society. This was to have been done at the Society's own expense, and the work of cultivation was to have commenced in August last; but, unfortunately, the ground was not ready at that time, and the floods of September having laid a great part of it under water, the market gardeners, becoming frightened, asked for a guarantee against loss, which the Commissioners would not agree to, and the project has, therefore, been given up. The intention was to have formed an executive committee of market gardeners, who were to give written orders for all operations, which orders were to be posted up, so that all comers might have seen what was done to the different crops, and as soon as one crop was cleared the ground was to have been prepared for another.

Although a programme of the subjects invited at the several competitions which are to take place from April to October appeared some time ago, no particulars were given as to the mode in which they were to be shown; and English exhibitors have become anxious to know what the requirements of the schedule would be, and naturally so, for the time is

now short indeed for preparing plants and other objects for exhibition. Much valuable time has been lost, and of many subjects exhibitors will be under the necessity of merely showing what they have instead of that which might have been specially grown for the Paris Exhibition. However, the requisite details, we understand, have at length been just published, and we purpose giving a condensed account of the most important features of the programme in our next issue. We are also informed that to Messrs. Carter & Co., of High Holborn, has been entrusted the laying down in grass of the English quarter of the Park.

Doubtful Species.—What are Acer opalus, Ait, opulifolium, Willd, polymorphum, Spach? asks M. Carrière; and he answers, Merely forms of Acer monspessulanum, which itself is, perhaps, only a form of Acer creticum. What is Acer neapolitanum, Tenore? Very probably a form of Acer opalus or opulifolium, differing only in the size and pubescence of the leaves. What is Cytisus alpinus? Merely a form of Cytisus laburnum. Every year in sowings of the former some Laburnums come up; but it is a singular circumstance that in some years the majority of the seedlings are Cytisus alpinus, whilst in others, although the seeds are gathered from the same trees, the seedlings prove to be almost invariably Laburnums. What is Morus italica, Poiret? Only a variety of the White Mulberry, which may be raised from the latter, and its varieties, Moretti and multicaulis; and if, as stated by M. Jamin, Morus nigra is only a variety, it would lead to the conclusion that the true Mulberries may be all reducible to a single type.

New Vegetables.—M. Carrière states in a recent number of the "Revue Horticole," that the Queensland Spinach, Chenopodium auricomum, is scarcely different from C. album, or White Goosefoot, a common native weed, and does not appear to be worth cultivation, more especially as the New Zealand Spinach, Tetragonia expansa, grows almost anywhere, and, in the opinion of connoisseurs, is of such excellent quality. Another plant, he says, is also beginning to be spoken of under the name of Ancona Salad. This is the Salsola soda, which it is almost impossible to cultivate—a matter of no great consequence, seeing that the plant is in no way ornamental, and detestable in a culinary point of view. Some persons, however, pickle the young branches and leaves in vinegar, like Samphire and Salicornias. A third plant is the Chili Leaf Beet (Poirée-carde du Chili), which is probably only a variety of the Brazilian Beet. It has highly ornamental leaves, and their stalks are of enormous size and very succulent. The latter are stated to attain from 5¾ to 7¾ inches in breadth, and to be richly coloured, whilst the bullated blades present a diversity of metallic hues, varying from green to dark red.

OBITUARY.

Mr. Joseph Henderson, for nearly half a century gardener to the Earls Fitzwilliam, died at Wentworth Woodhouse on the 22nd of November. The *Gardeners' Chronicle* contains this tribute to his memory:—"He was a man of a very high tone of mind, and acquired a surprising stock of knowledge on various subjects, notwithstanding the constant demands on his time as Superintendent of the Gardens, first at Milton, and afterwards at Wentworth. He had a fair knowledge of Latin and French, was an admirable draftsman, and besides possessing very extensive botanical information, he was a good ornithologist and entomologist. His botanical researches were not confined to Phænogamous plants, as he made the minute structure of Cryptogams an especial study, and was one of the first to discover the antheridia of Ferns, though he failed to recognise their real nature. His paper on the germination of Ferns in the 'Magazine of Botany and Zoology' in 1837, made him generally known amongst botanists, and in consequence of this and other researches he was elected an Associate of the Linnean Society, an honour which he well deserved. Ferns were certainly his favourites in the vegetable world, and the collections at Milton and Wentworth were amongst the most important in the country. He was happily encouraged in his pursuits by his employers; and he was not the only domestic in the establishment who did good service to science, for Mr. Artis, the house steward, was well known for his archæological researches, and his work on the 'Vegetation of the Coal Measures,' while the discoveries of Mr. Simmons are recorded in Curtis's 'British Entomology.' Mr. Henderson's health unhappily failed about three years since, and for the last year he never left his bedroom. He has left behind him few more useful members of society, and none more deservedly loved for his kindly disposition and numerous sterling qualities."

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

The plants in these houses require more heat than that which would protect them from the action of frost, or that degree of temperature which would be sufficient for many greenhouse plants. At the same time it should be recollected that fire heat is not congenial to the growth of plants, owing to its causing a

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dryness of the atmosphere of the house: therefore its application should be limited as much as possible consistently with the amount of heat absolutely necessary to maintain the circulation of the sap or the vitality of the plants. For this, less fire heat will be necessary if the glass be covered with some protecting material that will have the effect of preventing the escape of heat by radiation. By this means there will be a saving of fuel, whilst, at the same time, the health of the plants will be promoted, inasmuch as the air will not be robbed of moisture, which it is in proportion as the glass of the house is colder than the internal air which it encloses. The saving in the expense of fuel may then with much satisfaction be set against the cost of frigi domo or any other protecting material. Straw mats neatly made, as the French form them, are lighter and warmer than Russia mats, and that being the case it is surprising that they are not more used in this country by those who cannot afford more costly adaptations. Light wooden shutters the width of the sashes, made of thin boards, would last with care nearly or quite a lifetime. Stove plants may be divided, as regards temperature, into three classes:—1st, Those plants which come from the hottest parts of the tropics, or from near the level of the sea. The structure for these may be allowed to fall as low as 65° at night, and rise by sun heat to 75°. 2nd, The cooler stove, adapted for plants indigenous to places as far as lat. 30°, may have the temperature at night as low as 60°; by day it may rise to 65°, and with sun heat to 70°. 3rd, For another class a still cooler temperature, approaching that appropriate for what is designated a warm greenhouse, will be sufficient. 45° at night, 60° in the day, and occasionally 10° higher with sun heat, may be allowed. For Orchids the first of the above ranges of temperature will be suitable; for those which are adapted for a cool Orchid-house a temperature of 45° minimum and 55° maximum will be sufficient; and for some species the temperature of an ordinary greenhouse has been found to answer. In clear days, with bright sun, shading will be necessary, and the air should be kept from getting too dry. Such kinds as are in a state of rest should be kept comparatively cool and dry. Those that show signs of a disposition to make growth should be moderately encouraged with more heat and moisture.

GREENHOUSE.

At this season, when the weather is dull and the days short, plants want as much light as can be afforded them: therefore the glass should be washed clean and kept as bright as possible. The temperature should be from 40° to 45° during the day, and may be allowed to rise 10° higher by sun heat. Plenty of air should be given at all times when the weather will permit, without having recourse to much fire heat; for rather than do this, better limit the ingress of cold air, for when the air is very cold a great quantity rushes in at a comparatively small opening, and produces a ventilating effect equal to that of a very much larger opening in warmer weather. Great attention must be given in respect to watering, for some softwooded plants require much more than others, and some readily damp off if more is given than they actually require, or if from want of drainage water remains about the roots. Camellias should be kept rather moist, otherwise they are apt to drop their flower-buds; when they are planted out behind a north wall in ground exposed to all the rains that fall on the soil about their roots, and overhead, winter and summer, we do not find that they drop their buds: therefore it may be fairly presumed that moisture is not the cause of Camellias dropping their flower-buds, but the want of it. See, then, that these valuable plants are duly supplied with moisture. Water Azaleas sparingly, but give plenty of air. Shift Cinerarias; those for exhibition should be put into eight-inch pots. The green fly is particularly fond of these plants, therefore watch narrowly, and fumigate as soon as it is perceived, or even before.

PITS AND FRAMES.

Bedding plants are very generally kept in these structures, and for such it is especially necessary that damp should be carefully guarded against. Where there is a command of heat damp can be driven off by a little fire heat, with additional air at the same time. If the plants are in a somewhat warmer atmosphere than that of the external air moisture will not be deposited upon their foliage, and this will consequently neither mould nor damp off. At the same time, however, care must be taken to stimulate the plants but very little by heat applied for the above purpose, or for that of guarding against frost; better do this to as great an extent as possible by coverings, as recommended for stoves. *Cold Frames.*—These are useful structures for protecting many kinds of bedding plants; and, besides preventing the radiation of heat by covering the glass, the walls may be covered pretty thickly with hay or straw, drawn and placed vertically, and kept neatly compact by mats.

FORCING.

Vines should be pruned, cleaned, and painted over with a composition against insects, and more especially against the attacks of mildew. The loose bark, all that is dead and extraneous, should be completely cleared off, but so as not to injure the inner bark. The branches should then be painted over with a composition of soft soap, plenty of sulphur, and some decoction of tobacco. These ingredients will destroy all insect life. Sulphur will destroy the Oïdium, which has had to be dreaded so much of late years. Against its direful attacks sulphur is the most effectual substance known; and power-

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ful as it is in this respect, it is not at all injurious to vegetation; for Vines thrive well in Sicily, even a considerable way up the base of Mount Etna. Besides this dressing of the Vines, the interior of the house should be washed with soft soap and warm water. If Grapes are desired to be ripe in the end of May, forcing should be commenced forthwith. If the Vines are planted in an inside border, this should be forked up and well soaked with manure water; if they are planted outside, the border should be equally well watered—thoroughly moistened to the bottom—and then thickly covered with hot stable-dung, taking care that the stem outside is effectually protected from frost and wet. Commence with a temperature of 45° at night, and 50° in the day. Shut up the house at night till the buds begin to swell. Gradually increase the heat; the rise may reach 50° at night and 60° in the day, or 65° with sun heat, by the end of the month. Keep the atmosphere of the house rather moist by syringing and shutting up the house at the same time, for syringing with a strong current of air, especially dry air, produces a chilling effect on the rudiments of the buds. *Strawberries* will not bear rapid forcing in their early stage of growth. To set the roots in action some pots may be plunged in very mild bottom heat in a frame with a temperature of 60°. *Forcing Flowers.*—Established plants in pots such as Roses, Lilacs, Deutzias, Rhododendrons, &c., should be plunged in gentle heat to forward them for introduction to a warmer house.

KITCHEN GARDEN.

Trench, rough-dig, or ridge all vacant ground, so that it may be ameliorated by the action of frost; and take advantage of this likewise for wheeling manure, and performing other operations, which cannot be well carried on when the surface of the ground is loose and wet; but do not turn down frozen crust in the bottom of the trenches, for there it remains long unthawed, and afterwards it continues wet and raw till far on in the summer. Early Peas may be sown in a warm situation; and also in small pots, for transplanting in rows in the open ground.

FRUIT GARDEN.

The pruning of all kinds of hardy fruit trees should be proceeded with; and if it is decided that any Apple, Pear, Plum, or Cherry trees shall be grafted with a different sort at the proper season, they should now be headed back, for if this is delayed till the sap begins to rise, the alburnum is apt to die back below the section, and more especially so in the case of large limbs; the graft then takes badly, and canker is apt to ensue. Stocks should be headed back early in the month, if not later than the first week so much the better, for they push early, and, if not headed back before they do so, the graft succeeds imperfectly, and often proves a complete failure. If, as a stock for Pears, a good sort of Quince be employed, not the small-leaved variety of stunted growth, and cut back early, every graft should take as well almost as on the Pear stock. There are some varieties of Pears that will not continue to thrive well on the Quince; but all kinds grow for a time if the above advice is attended to. Scions for grafting should now be taken off, and more especially those of Plums and Cherries; the cuttings should be laid in the ground, and so that the lower ends of all of them may be in contact with the earth. If the planting of fruit trees was not completed in autumn, it should be done now, providing the ground is in working condition, neither too wet nor frozen. The ground, before planting, should be regularly trenched to the depth of at least 2 feet; but 2½ or 3 feet is preferable where the trees are liable to suffer from dryness, and, in order that they may not, on the other hand, be injuriously affected by stagnant moisture, the bottom of the trenches should form a gently inclined plane towards drainage. The trees will then thrive better, produce in greater abundance, and the fruit will be of superior flavour. Prepare cuttings of Gooseberries and Currants. Clear away the old wood from Raspberries, and the weakest of the last summer's shoots. Shorten the rest at the band, near the top, and tie them up.

FLOWER GARDEN.

Plant Roses; for these the ground should be well trenched and manured. Protect the roots of Tea-scented and China Roses with a mulching of long dung. All half-hardy plants should likewise be mulched with any convenient substance that will prevent the ground from being frozen about their roots; and hoops and stakes should be kept in readiness for forming skeletons to support thatching over tender plants in case of severe frost. Roll walks, and cut all the turf edgings.

FLORISTS' FLOWERS.

Water sparingly, and only when absolutely necessary. Dahlia roots and Fuchsias may now be put in heat for starting, and cuttings of these will now strike readily, and form good plants for June and July. Keep Hollyhock cuttings clear of decayed leaves. Pinks, and all fibrous-rooted plants that may have the soil loosened by frost, should be again made firm. Prepare soils and compost for potting next month. Attend to covering Auricula-frames in severe weather, but give plenty of air to these plants, and to all other florists' flowers which merely require protection from severe frost. Plant Anemones and Ranunculuses in dry weather, the latter towards the end of the month. See that Tulip-beds are protected from heavy rain, snow, and severe frost, by hoops and mats, or other means.

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Myosotis Alpestris

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THE GENUS MYOSOTIS.

WITH AN ILLUSTRATION.

WITHOUT dwelling on the beauties of our Wild Flowers, albeit amongst them does occur the *Myosotis palustris*—the Forget-me-not of poets and of lovers, we may at once present to the admirer of garden flowers a threefold claim on his sympathies, in behalf of the genus *Myosotis*, drawn respectively from the parterre, the alpine or rock garden, and the greenhouse; for to each and all of these, as well as to our rural lanes and streamlets, the Myosotes yield a cœrulean gem which is not to be surpassed for loveliness amongst all the flowers of earth. Let us try briefly to substantiate this claim.

And first of the parterre. Who that has seen the charming masses of flowers in the spring garden at Cliveden, would for a moment hesitate to admit that here the claim was made good in the case of *Myosotis sylvatica*, as he gazed on sheet after sheet of its heavenly blue, spread out before him of that noble garden? Not one, we are sure. Mr. Fleming speaks of it as one of the best and most hardy of the many plants he has employed for beautifying the spring, easy of culture, admitting of abundant increase, and bearing transplantation up to the very blooming period, though, he says, it is better planted early, so that it may have time to cover the soil. It is in fine bloom during May, but both comes in earlier and, if undisturbed, would continue later than that. The seed should be sown in June for the next season's flowering, the plants having meanwhile been pricked out to give them strength, and then planted permanently in the flower-beds either in autumn or early in spring. The white variety of this Myosote is equally useful with the blue one, and for the same purposes.

Of the value of the Myosotes for the alpine or rock garden our illustration speaks in language which is silently eloquent. The plant we now figure, namely MYOSOTIS RUPICOLA—or *alpestris*, as marked on the plate, for the two names are synonymous—is a dwarf perennial, found in a few elevated northern localities in England and Scotland, but always exceedingly rare. We are indebted to Messrs. Backhouse & Son, of York, who exhibited plants at South Kensington in 1865, for the opportunity of figuring so charming a group of it. Mr. J. Backhouse, jun., writing from Teesdale on the 15th of May in that year, observes, "The wild Teesdale locality of our *M. rupicola* was buried in snow apparently a foot thick, extending 500 feet down the sides of the mountain (Micklefell), and extending for ten miles along the summit ridges, only two days ago!" and he adds that the *M. alpicola* of their catalogue of 1864 is a synonym, as also is the *M. alpestris* of Hooker and Babington; but he goes on to say, "It is certainly not the continental *alpestris*, which I believe is only a mountain form of *sylvatica*." The dwarf habit and large richly-coloured flowers of this plant render it most ornamental either for moist rockwork with a north aspect, or for the alpine frame, and in such situations it succeeds very well, the principal feature in its treatment being to prevent its becoming too rapidly excited by excess of heat. What it requires is a cold moist situation, where it may remain at rest all the winter.

The Azorean Forget-me-not, *Myosotis azorica*, a dwarf tufted, free-flowering perennial, furnishes our illustrative example of a choice greenhouse Myosote. This beautiful plant is found in the vicinity of waterfalls in the westerly islands of the Azores group, following the course of rocky mountain streams, where the atmosphere is kept humid by the water spray. Mr. H. C. Watson,

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its original discoverer and describer, thus writes of it:—"The deep rich blue of its numerous flowers, and their long succession from the lateral branches, combine to render this species well deserving of cultivation, provided it can be brought to flourish in the drier climate of our gardens. It will require a loose peaty or sandy soil, careful shading from the midday sun, and frequent sprinkling with water"—Mr. Watson adds, "and to be covered with a glass in hot, dry weather," but experience has shown that this is not necessary, for it thrives perfectly in a greenhouse amongst Heliotropes and Pelargoniums, where it ripens its seeds plentifully. The play of colour in the many-tinted flowers and flower-buds, it has moreover been observed, is scarcely rivalled by anything in cultivation.

We trust we have now established the threefold claim on the sympathies of lovers of flowers, in behalf of the Myosote family, to which we invited attention at the outset.

M.

FEARNOUGHT CABBAGE.

As the destruction of crops of Broccoli seems general, and as many other members of the Brassica family have suffered so severely from the late severe weather, that it is doubtful whether they will prove worth saving, it is well deserving of note, that with me at least, that very useful and hardy hybrid Cabbage, the Fearnought, has been unscathed; and having used it somewhat largely during the frost, I can from experience affirm that it is exceedingly tender and delicious. Three years ago I obtained a packet of the seed, sowed seed from it, and planted out the plants which were produced in the following winter, when they began to display their real character. I found that not more than one in twelve was true to description, but I saved a few of the stems of the very best for seed, and from them my stock this season has been perfectly correct. Fearnought Cabbage is dwarf, with foliage somewhat curled, and of a purplish hue. It begins hearting-in about Christmas, and may be safely relied upon as a most useful vegetable during the depth of winter. I would advise everybody to grow it.

A. D.

REMARKS ON FRUIT TREE CULTURE.—No. 17.

Do not let me be misunderstood, I am not desirous of throwing cold water on our modern systems of pyramid culture, root-pruning, tree lifting, and all connected with the restrictive system of management. I admire them all, practise them with satisfactory results, and consider the necessary operations as amongst the most interesting of any that a gardener has to deal with; but I cannot ignore the belief, that by interfering so much with the functions of the trees we materially shorten their existence, and that the true character of the tree, both as to its capability for productiveness, and the size and flavour of the fruit, can only be obtained where it is allowed to develope itself more in accordance with natural conditions. At the same time, let me observe, that when I say free development of growth, I do not intend to affirm that all the growth which the tree is inclined to throw out is to be allowed to go on unchecked; on the contrary, from the earliest stages the hand of the pruner must be upon the tree to guide and encourage, or restrain, as the case may be, or otherwise bend it to his will.

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Nor must he relax his care when the trees are matured, otherwise through excessive fruit-bearing they will lose the power of producing a sufficient woody growth to keep up a healthy and free development, and a rapid decay will ensue. In point of fact, the whole art of good management consists in the maintenance of the balance, not only between the growth of wood and production of fruit, but also between the roots and branches; the mutual dependance of each upon the other for its own well-doing, is a beautiful illustration of the wonderful laws of Nature, and will well repay the earnest attention of the student.

In pruning we are generally too much inclined to look only to the production of fruit; our minds have a natural bias in that direction, and this has often such an influence upon our operations as to cause us to lose sight of those grand principles by which a progressive and constant production of fruit is influenced. We may rest assured, however, that this cannot be carried on to any extent without a disturbance of the whole system of the tree, since nothing (judging from practical results, and leaving out scientific physiological theories, although I believe they would bear us out), so completely affects the vitality of the roots as excessive fruit-bearing, because it, of course, by its superior powers of attraction and exhaustion prevents the growth of the tree, and thereby influences the formation of roots. Hence, then, we may infer the absolute necessity which exists for approximating our treatment to the requirements of each governing principle, so that each may have its due share of encouragement.

Now, where there is plenty of room for development these operations may be carried on in the broadest and most liberal manner, combining both pleasure and satisfaction in the management. The natural tendencies of the trees, with regard to fruit-bearing, will, in such cases, develope themselves with more certainty, and sometimes in a way very different from that we expected, which, by the way, forms a very good guide for our treatment under the restrictive system. Our plans of pruning and management are, as I have before remarked, concentrated upon fruit-bearing, and we are accustomed to lay in such shoots as appear likely to produce fruit; but very often it is found that the tree absolutely rejects these shoots, and fills all the short spurs and small weak shoots full to overflowing, whilst that on the stronger shoots, although it sets well, is eventually thrown off, as though it would say in mute language, "My office is to keep up the stamina of the tree by a liberal growth, to elaborate the food sent up by the roots, and thus return to them that due proportion of strength to qualify them for future exertion; whereas, if I suffer this fruit to fasten on me, and feed as it were on my very vitals, I shall lose the power of making growth, and become prematurely aged and useless;" and the roots will infuse life into some of the old dormant buds, and send up a vigorous growth of unfruitful luxuriant wood.

All the preceding remarks are intended to direct the attention of the young practitioner to the fact that there is a necessity for studying more than the mere production of a present crop of fruit. I know that the appearance presented by a large crop of fruit is very agreeable, and the temptation to retain it very great. I have sometimes observed a hundred fruits taken from a tree where thirty would have been ample—in fact, as much as the tree could bear and at the same time keep up its strength and vigour. The consequence of this overbearing is, that the tree will require, on an average of three years, oftener more than less, to recover itself and again attain its former degree of strength and vigour, so as to enable it to

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carry another large crop. But, supposing the hundred reduced to thirty, the tree will carry on its vigour with the crop, and with care there is no reason why there should not be forty the next year, and a progressive increase afterwards, the tree all the time increasing in growth and strength for future production, instead of having an interregnum of sickness and debility, out of which it is often very difficult to recover it. One often reads accounts of extraordinary crops of fruit produced by certain trees, and I am always led to question the policy of taking such large crops. Certainly, looking at such statements from a practical point of view, I should be greatly influenced by the age and strength of the tree, as well as the amount of superficial feet covered by it. If that is disproportionate I should not only doubt the policy but the chance for anything like a crop again for some years. I write from experience, having often made the experiment. To mention only one notable instance—that of a healthy and vigorous Coe's Golden Drop Plum: about five years ago it was crowded with bloom-buds, and the fruit set most abundantly; I left on about four times the number of fruit which I should have done under ordinary circumstances, and the consequence was that three-fourths of it was only fit for tarts, the remainder but indifferent dessert fruit. The crop in the following season amounted to seven fruits, and I consider that the tree has only just now recovered from the exhaustion induced by that excessive crop.

Redleaf. JOHN COX.

GARDENERS' EXAMINATIONS.

SOME of our readers may have been aware of the fact that Examinations for Certificates have been held during the past year by the Royal Horticultural Society, and through its influence, also, by the Society of Arts, the principal objects being at once to stimulate the mental faculties of young gardeners, and to give them opportunities of distinguishing themselves. We are among those who believe that the stimulus was wanted, for it was on all hands admitted that young gardeners of the thoughtful, studious class, who might be expected to win their way to professional honours, were much less frequently met with than they were some quarter of a century ago. We are, however, rejoiced to find that the old leaven which was at work in the days we have alluded to, is not altogether exhausted, but that it still exists in the lump, stirring up young men here and there to lay aside the frivolities and thoughtlessness of the age, and to work perseveringly onwards. Verily all who thus labour will have their reward.

It is something accomplished to have moved out of the beaten path, to have broken the ice—in a word, to have made a start with these Examinations. That their occurrence last year was not half known, we believe; and that many young men from diffidence failed to avail themselves of the opportunities offered them, we cannot doubt. On the other hand, the force of example is mighty; and now that a few out of the professional ranks have honourably distinguished themselves, we can scarcely doubt that the movement will be more generally appreciated, and the benefit more freely accepted than it has yet been. Such, at least, ought to be the case. The Royal Horticultural Society deserves meanwhile the thanks of the community for having inaugurated the movement. It has done less wise and worthy things, and for doing them has received more than its share of vituperation and opposition; it is therefore only just, when it does well with a good intention, that it should receive commendation and support.

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There are, doubtless, men of a practical turn of mind who are ready to question the advantages of Examinations of this kind, on the ground that they are wholly theoretical and smack of book-learning, while they themselves hold that there is nothing like practice: but we must demur to this view of the matter. The Examinations probe deeply into the practical knowledge of the candidates. Men of natural talent may spring up here and there whose inborn sense completely distances all the studies of such of their less fortunate neighbours as have no such advantages; but taking men at the average, we hold that the mind requires to be exercised in whatever subject the hands may be engaged in, before the work which is to result can be intelligent work; and it is just this exercise and stimulus which Examinations furnish in the case of the gardener. He may plod on at his daily task, week after week and year after year, and be but little the wiser for it, or but little better fitted to act on his own resources; but if he is set thinking about the very same operations, he must be mentally blind indeed if he does not see a new light bursting in upon him, and find that what was before to him unmeaning routine has become from that time pregnant with purpose. The acquisition of knowledge serving to elucidate the duties of daily life is good for us all, and not less so for the young gardener than for others. To acquire this knowledge is one grand stage on the road towards success. To apply it when acquired with tact and common sense, may be almost said to complete the journey.

We add to these remarks a brief statement of the results at the two Examinations to which we have specially referred. That of the Society of Arts took place in April, 1866, and the following were the Certificates gained:—

NAME AND AGE.	CERTIFICATES.			
	Book-keeping.	Botany.	Flori-culture.	Fruit and Vegetable Culture.
R. Brown, Salford—25	..	3rd	..	..
A. Dean, Southampton—34	..	..	..	3rd
J. K. Dempster, Glasgow—27	..	2nd	..	..
J. Duncan, London—22 .. Royal Horticultural Society's Prize of £5 for Botany	..	2nd	2nd	..
J. Godseff, Chelmsford—19	..	3rd	..	..
J. C. Higgs, Southampton—25	..	..	.	3rd
R. C. Kingston, Hull—19 .. Royal Horticultural Society's Prize of £1 for Botany	3rd	3rd	3rd	2nd
W. Osborne, London—25	..	..	3rd	3rd
A. Parsons, Burton—22	..	3rd	..	..
W. P. Roberts, Ipswich—26 .. Society of Arts' Prize of £5 for Fruit and Vegetable Culture	..	..	2nd	1st
G. Stanton, Slough—25 .. Society of Arts' Prize of £5 for Floriculture	..	..	1st	2nd
G. M. Woodrow, Richmond (Surrey)—20 .. Society of Arts' Prizes of £3 for Floriculture, and £3 for Fruit and Vegetable Culture, and Royal Horticultural Society's Prize of £3 for Botany	3rd	3rd	1st	1st

At the Examination of the Royal Horticultural Society in December, 1866, Mr. R. C. Kingston, of the Royal Gardens, Kew, and Mr. George Stanton, of Berry Hall Gardens, Taplow, Maidenhead, won the distinction of being

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elected, on the report of the Examiners, as Associate Members of the Society. The medal offered by the Council for the highest number of marks in practical gardening—*i.e.*, including Flower, and Fruit and Vegetable Culture, was awarded to Mr. G. Stanton. The following Certificates were granted to young gardeners, consisting of the Chiswick students and such others as chose to present themselves in due form. Such results are very satisfactory as a commencement, and we trust that they may encourage many other young gardeners to avail themselves of the future opportunities which will be afforded them thus to distinguish themselves:—

NAME.	CERTIFICATES.	
	Floriculture.	Fruit and Vegetable Culture.
George M. Woodrow, Royal Gardens, Kew, W.	1st	
Alexander Robinson, Chiswick Student	2nd	2nd
William Spinks, Chiswick Student	1st	1st
Brian Wynne, Chiswick Student	2nd	
Thomas Wright, Chiswick Student	1st	2nd
Henry Hannam, Chiswick Student	1st	2nd
John M. Henry, Royal Gardens, Kew, W.	2nd	2nd
Frederick Thompson, Royal Gardens, Kew, W.	1st	2nd
A. Jamieson, Royal Gardens, Kew, W.	1st	
John Stapley, Ovendon, Biddenden, Staplehurst	1st	2nd
Thomas Waddington, Millfield House Gardens, Cobham	1st	2nd

While the subject is before us, we may further mention that the Society of Arts will hold another Examination in Floriculture, and in Fruit and Vegetable culture, early in April next, the full particulars of which may be had of the Secretary, Adelphi, London; but as an indication of the kind of preparation needed, we may state that questions relating to any of the undermentioned subjects may be put to the candidates.

In Floriculture—

Improvement of Races in Plants, by what means it can be commenced and carried forward.

Hybridisation, objects of.

Conditions necessary to ensure fertility in Flowers.

Warming and Ventilation of Houses for Plant Culture.

Influence of Ventilation on Plants confined in forcing-houses.

Limits of Temperature endurable by Plants, and how to turn this to advantage in Practical Floriculture.

Bottom Heat, value of, in Plant Culture.

Watering, the *rationale* of, in the Culture of Pot Plants.

Liquid Manures, special recommendations of.

Food of Plants, how and whence derived, and in what form received.

Propagation, the various modes of, and their special adaptations.

Vitality of Seeds, duration of, and how best preserved.

Budding, Grafting, and Inarching, how performed, and to what subjects best adapted.

Increase by cuttings and by layers.

Leaf-cuttings, how is it that they can organise buds?

Composts for various classes of plants.

Acclimatisation. Is it possible to increase the hardiness of any race of plants, and what are the most likely means?

The leading Flowers of the different seasons, indicating those to be obtained naturally, and those by artificial means.

Special Culture—Ferns, Orchids, Succulents, Heaths, Hardy Annuals, Bedding Plants.

Text Books:—"Lindley's Theory and Practice of Horticulture" (*Longmans*). "M'Intosh's Book of the Garden" (*Blackwood & Sons*). "Thompson's Gardener's Assistant" (*Blackie & Son*).

In Fruit and Vegetable Culture—

Kinds of Fruits adapted for various soils and exposures.

The Propagation, Pruning, and Training of Fruit Trees.

The Structure and Functions of the Organs of Trees, considered in their relation to growth and reproduction.

The Forcing of Fruit Trees, and their cultivation under glass, both in and out of pots.

The Theory of Ripening, and the principles that ought to regulate the preservation of fruits after they are ripe, or their subsequent maturation.

The Packing of Fruit for transmission to great distances.

The Kinds and Quantities of Vegetable Seeds and Roots required for cropping gardens of given dimensions.

The Most Approved Mode of Culture of the different kinds of Vegetable and Salads.

The Preparation of fermenting materials for artificial heating.

The Forcing of Vegetables and Salads.

Soils, Water, Atmospheric Air, Light and Heat in their relation to the successful cultivation of Fruit and Vegetables.

Manures, and their application.

The Diseases and Insects to which Fruit Trees and Vegetables are subject, and their remedies.

The Erection, Heating, and Ventilation of Garden Structures.

Text Books:—"LINDLEY's Theory and Practice of Horticulture" (*Longmans*). "The Cottage Gardener's Dictionary" (*Bell and Daldy*). "HOGG's Fruit Manual," Third Edition (171, *Fleet Street*). "RIVERS's Miniature Fruit Garden" (*Longmans*). "BRÉHAUT's Modern Peach Pruner" (171, *Fleet Street*).

The successful candidates at this Examination have an opportunity to win, besides the usual Certificates of the 1st, 2nd, and 3rd class, six prizes in Botany, Floriculture, and Fruit and Vegetable Culture, offered by the Society of Arts; seven prizes in the same subjects, offered by the Royal Horticultural Society; and three prizes in Floriculture, and Fruit and Vegetable Culture, offered by the Proprietors of the *Gardeners' Chronicle*, the winning of the latter prizes depending partly on a knowledge of Book-keeping or Mensuration. Let the candidates take this as their motto:—*Palma non sine pulvere.*

GLADIOLI IN 1866.

[THE valuable paper subjoined, written by one of the first cultivators in the United Kingdom, and giving a statement of his doings during 1866, both in the garden and at the exhibition tables, has recently been published in the *Gardeners' Chronicle*.]

I PLANTED five hundred of my best bulbs in five beds of one hundred each (commencing about February 6th, and getting all in by about the 20th), in the richest soil I ever used for this flower, it being composed of about one-half of sods left to rot for two years, and the remainder of rich old manure. The beds were made in December, and the soil was turned and mixed on every possible occasion up to planting-time. Each bulb had sharp river sand placed under and over it as usual, and fully 4 inches of the same rich soil was placed over all. The nice green shoots began to appear about April 12th, and all were well up about the middle of May, with just nine deaths—a very small per-centage, but I had gone over my bulbs very carefully before planting, and thrown out every one that showed symptoms of unsoundness, little black marks on the corner of the bulb being a sure sign of future decay. I top-dressed twice in June with rich loam, and mulched all in July heavily with good old manure. I gave water moderately until about July 1st, and then very heavily for three or four weeks, during the melting weather of that period, using strong liquid manure about twice a-week, and ceasing watering finally about August 1st, when a

considerable change of temperature occurred. The results were magnificent; I had splendid spikes in profusion. I exhibited on nine occasions, taking eight first and one second prize, one of the former a silver cup.

I have just (October 25th) taken up those five hundred bulbs with the exception of a few still in bloom. Many came up doublets, and there were several triplets; about a dozen turned yellow just before blooming, and died off, and about another dozen, which had bloomed early, were rapidly becoming black, and so of course worthless. There was little or no spawn on this entire lot of five hundred. I shall in future take up any choice sorts that bloom early, very soon after they have done. It does not seem to do the slightest harm to take them up quite green and full of sap, provided about 18 inches of the stalk be left to wither gradually.

My spawn of last season, and my undersized bulbs, I grew in two large beds, in nice light rich soil with a good deal of sand. Many of them have bloomed, giving fair medium-sized spikes, and all have taken up in prime health, nice and plump and fleshy-looking, and nearly every bulb, from the size of a marble upwards, was well laden with fine healthy well-developed spawn. These little matters are well worthy of the consideration of Gladiolus-growers. If you drive them—that is, grow them very rich, you obtain grand spikes of bloom, some deaths, a fair increase of bulbs, and little or no spawn. If you adopt the opposite system, and use light rich sandy soil, you obtain moderate blooms, no deaths, and an immense progeny of juveniles.

Next, as to novelties. I obtained as usual all Souchet's new sorts for 1865 (three bulbs of each). Of Milton, one made no sign, it never came up, and the other two grew on weakly, turned yellow in July, and died off; so I have never seen Milton, but I am informed by those who have that it is a fine flower. Of Newton, one bulb died, and two bloomed fairly, giving a curiously coloured flower, rosy crimson shaded, dark brownish red feathers, white throat, extra fine shape; it will, I think, be a fine flower, but will require an extra fine season. Of Byron, all three bloomed well, and increased freely; colour rich *ponceau*, whitish straw throat, violet blotch, medium-sized bloom, middling shape. Next comes Shakespere, a splendid flower, a rich creamy white, very light lilac feathers, throat straw and magenta shaded, shape first-rate, spike excellent. And, last of all, we have Eurydice, magnificent, white ground, rosy violet feathers, brownish shaded throat, large flower, very fine spike. I really do not know which of these last two flowers most to admire; both are light grounds, both are very beautiful, and in my opinion, a great advance on any existing variety. Our friend "D., *Deal*," (no mean judge of what a good flower should be) considers Eurydice as good fully as one of Standish's very best, which it resembles—namely, Eleanor Norman, but I must say I like the foreigner much more. Shakespere and Eurydice are both fine vigorous growers, and seem first-rate in all respects. If I were pressed to choose between the two, I think I would give the palm to Shakespere for distinctness of style and colour.

The flowers of 1864 (Souchet's) have, on the whole, done very well. Madame Furtado is very fine as a light flower. Meyerbeer is very rich as a dark shaded red. Madame de Sévigné is A1 in her own way, a decided beat on such fine sorts as Le Poussin, &c. Fulton is a most splendid shaded scarlet, but a little too thin. My seedlings of 1864 have grown well, and many have bloomed; but while several good flowers have appeared of fair average merit, and distinct enough in themselves, still there are not more than two or three which promise to be decided acquisitions. The seed

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sown when ripe in September, 1865, in pans, and planted out in April, and the seed also sown in the open ground in April have done very well, having grown wonderfully during the moist weather of September. The frost which we had on two or three nights does not seem to have checked them at all. And also two beds of seedlings which I left out last winter have done very well, but were later in starting and blooming than those planted in spring. There is a numerous lot of novelties offered this season. Some sixteen or eighteen varieties have been announced by M. Souchet. I have ordered three bulbs of each of these, and shall be entirely satisfied if the lot gives me half a dozen sorts as good as the gems of the season just passed.

What the famed Ascot Nurseries of Standish & Co. are about to offer in this way I know not, but I cannot refrain from stating that several of the flowers raised by Mr. Standish at Bagshot or Ascot pleased me very much this last season. I may particularise specially The Colonel, Ensign, Lucy Neal, and Carminata—four as distinct and good flowers in their way as any in cultivation.

Finally, I was strongly inclined last autumn to apply the pruning knife freely to the list of Gladioli at present in cultivation; however, I thought it best to wait a little, and the result shows I was correct in doing so, as it would have been very difficult, nay, almost impossible, to have made up the classes for the exhibition tables for the early shows commencing on August 16th, without the aid of such good old standard varieties as Madame Binder, Joan of Arc, Archimedes, Isoline, Madame Souchet, Madame de Vatry, Duc de Malakoff, Comte de Morny, &c. I believe these, and many other varieties of the same standing, are still indispensable for those who grow and exhibit largely.

Dublin. JAMES F. LOMBARD.

COLOURING OF GRAPES.

IN a paper at page 9 I made some remarks on badly-coloured Grapes; I wish now to mention that the berries of white or light-coloured varieties are often, though less perceptibly, in the same state. For instance, White Syrian and Muscats when badly ripened are bluish green, instead of being of the colour of ripe Golden Drop Plums. I need hardly observe that both these kinds require more heat than the hardier Grapes; but even with that assistance, if their leaves are injured, neither the fruit nor young wood come to proper perfection. In such cases extra heat and sunshine will not affect the green-coloured berries, nor ripen the soft wood, owing to the want of a proper supply of nourishment from injured leaves. This reminds me to notice an error in my last paper: it should be wood, not fruit "may remain green until blackened by frost." The other remarks, however, may apply to all other kinds of badly-ripened Grapes, and likewise account in a great measure for the "shanking" of Grapes before they ripen. Consequently, the great object to secure in order to have not only properly-coloured Grapes, but all kinds of fruit of proper colour, is to take great care of the health of the leaves, without which one may as well expect to see good fruit as to see kine grow fat with diseased lungs.

Having mentioned "shanking," I should notice that the White Syrian is of very robust growth, but yet when grown in a low temperature it is as liable to shank as other tender kinds of weak habit. But not so when treated as Muscats should be; then its fruit is excellent, and may keep longer than any other of the late white Grapes. In general the bunches are

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very large, and the berries oblong, indeed so large as to have led to the conjecture that the Syrian Grape is the same kind as that which the Jewish spies brought from Canaan, in which case the cluster was so large that "they bore it between two upon a staff." However, I have grown the Syrian Grape many years, and never knew it fail when properly treated. The Vine is certainly of a very distinct kind. I will send a few "eyes" of it to any one, on the condition of the postage being paid.

Cossey Park, Norwich. J. WIGHTON.

NOTES AT THE FLORAL AND FRUIT COMMITTEES.

January 15th.—With the thermometer standing at 22°, how was it possible there could be many, if any, subjects at this meeting of the Committees? A few things put in an appearance in spite of the severity of the weather, the "Notes" on which will occupy but a small space compared with previous records. Mr. John Mann, of Brentwood, had a small plant of his cerise-scarlet Zonal Pelargonium Mimas, to show its character as a winter-flowering kind. From Mr. Thomas Howes came a single Chinese Primrose with variegated foliage, which was no advance on any of the variegated forms previously seen. Messrs. E. G. Henderson & Son had a variety of Sophronitis grandiflora, named Alexandrina, of a very striking shade of rosy-crimson; but it appears that this and other shades of colour appear amongst imported plants, so that it was not regarded as a novelty. A cut spike of an Oncidium, which was said to be closely allied to O. serratum, if not identical with it, came from Messrs. Backhouse & Son, of York, and a cut bloom of Brasavola cuspidata. The latter has a very rich perfume. There were also cut specimens of Barkeria Skinneri and a Lælia, from Mr. Hodges, gardener to E. Wright, Esq., Gravelly Hill, Birmingham.

A collection of Apples came before the Fruit Committee from Mr. Whiting, of the Deepdene, Dorking; and several dishes of Court of Wick Apple were sent by Wentworth W. Buller, Esq., Strete Raleigh, Exeter. Messrs. Lucombe, Pince & Co., of Exeter, sent a bunch of their new black Grape, Mrs. Pince's Black Muscat, an excellent keeping Grape. This bunch had been hanging for a considerable time, but the berries were quite plump; it appeared, however, to have lost some of the Muscat flavour during preservation.

R. DEAN.

BACKHOUSE'S BROCCOLI AND TURNER'S LITTLE GEM PEA.

I AMONGST many others feel very much indebted to the Messrs. Backhouse, of York, and to Mr. Charles Turner, of Slough—to the former for their distinct Broccoli, and to the latter for his Little Gem Pea.

As regards the Broccoli, I first had a packet of the seed in 1865, and thus finding out its inestimable qualities I furnished myself with a good supply for the past year. As it succeeds the autumn Cauliflower, I find it doubly valuable, because I am acquainted as yet with no other sort which does so. On the same piece of ground I sowed on the same day Snow's Winter, Osborn's, Grange's, and Gillispie's. The last two, however, were of no service to me as Winter Broccoli, and Snow's Winter I never found of any use until spring, when numerous other sorts come into use.

As regards Little Gem Pea, it is all that I could desire, and will, I am

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sure, be so to many others when they give it a trial. It grows a little over a foot high, is very productive, and the produce is of first-rate quality. Its dwarf productiveness so astonished me that I determined to try it in pots during the winter. About the first week in September I took a few dozen eight-inch pots, which were three parts filled with soil; I then placed about a dozen of the Peas round the sides of each pot, and filled the remainder up with the soil. The following is the result. In the month of December they produced three dishes, and now they are covered with blossoms and pods. Again, in the middle of October I sowed another batch, which is equally healthy, and will yield pods fit to gather about the 1st of March. I must not omit to say, that there are no symptoms of mildew, but the plants are as healthy as possible. It seems to me, from the trial which I have made, that if space will admit, we may have Peas all the year round.

Sandringham. W. CARMICHAEL.

ON CONIFERS.

(*Concluded from page* 7.)

THE severe frost of December, 1860, following a summer remarkable for its long continuance of wet weather, low temperature, and absence of bright sunshine—all conditions very unfavourable for the ripening of wood, made sad havoc among Conifers, and not only among the more tender sorts, but also among those that were considered perfectly hardy. This, for a time, acted as a check on the planting of Conifers. Many persons imagined, from the wholesale destruction of fine specimens which they witnessed, that the cultivation in our climate of the species killed was almost hopeless, not considering how very exceptional the season of 1860 was.

Because many perfectly hardy Conifers were killed in different parts of the country in 1860, we must not on that account consider them too tender for our climate; it would be very unphilosophical to do so. We may with as much propriety class our common Holly among tender shrubs, because many hundreds of trees were killed that season by the frost, and many of the dead boles may yet be seen in the hedges in various parts of the country. All low, flat places suffered most in 1860. We had some losses here, but on the whole escaped better than the generality of places in this part, principally, no doubt, in consequence of the high and undulating character of the ground. Among the losses were the following:—

Araucaria imbricata.—Some plants of this Conifer were killed and others were severely injured. Some of the latter have now quite recovered. We have not planted any since 1860.

Pinus insignis.—There were several fine plants of this, all of which were completely killed. One of these was a superb young tree, the handsomest specimen of its size that I had ever seen. It had been planted ten years, and was the admiration of every person who saw it. It was in an exposed situation, and had stood every winter uninjured except that of 1859-60 (in which there had been a long continuance of severe frost), when the foliage was slightly browned. This fine plant was completely killed that season; we have not planted any since.

Cupressus macrocarpa.—Of this we had a very fine promising specimen. It was completely killed, as were also several fine young plants of C. torulosa and C. funebris. Of these we have planted none since. With the exception of a few plants of Cedrus Deodara, these include our principal losses in Conifers from the frost of 1860.

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Cedrus Deodara.—A few fine young specimens of this were killed in 1860, and some more were so much injured that we removed them. Nearly the whole of these were in low or confined situations. All those on high ground and in exposed places escaped uninjured. Our highest trees were all planted in 1852; the height of the tallest is now 25 feet. There is a very considerable diversity of character among them, some running up with a fine bole and small branches, and others growing more dense and spreading in the branches, the former I suspect are from cuttings and the latter from seed. The handsomest specimen we have was a small tree in 1860. It stood without receiving the slightest injury in a very exposed situation. It is only 15 feet high, but is as many feet through, and the branches, which are very pendent, are as dense as a Furze bush. It was planted ten years ago where an old sunk fence had been just filled up with very strong clay, and the plant at present is in the most robust health. Our next best specimen is also growing in a strong clayey soil, well drained of course. I need hardly remark that a strong clay soil undrained is very unsuitable for Conifers. We have a younger plant than any of these, that promises to outstrip them in rapidity of growth, in graceful habit, and robust health. It is growing in gravelly soil of considerable depth in a situation fully exposed to sun and air, but sheltered from the west winds by large trees at a considerable distance from it. Besides these, there are also a number of fine young specimens growing in different parts of the park and the grounds, some in sandy soil (and these only make slow progress), others in gravelly soil, and others again in clay soils.

Cedrus Libani.—There are two noble trees of this Conifer in the park, growing on rising ground in a soil of a gravelly nature and subsoil of clay. They exhibit great robustness and health, but, unfortunately, they were planted too close together. The branches of both have long since become interlaced. There is a number of smaller trees of different ages and sizes in the grounds, but they have not made very rapid progress of late years. The late frosts in spring oftentimes kill the leader and young growth, giving them a rather stunted appearance.

Cedrus atlantica.—We consider this by far the most ornamental of all Conifers, and have in consequence planted it largely. We have planted upwards of 1,500 of it altogether, varying from 10 inches to 10 feet in height, and in a great variety of aspects, situations, and soils. It grows best where the soil is of a strong loamy nature, and worst where it is very light and sandy, and where there is a deal of vegetable matter. We have none of any great height, the tallest being only 20 feet; of this height we have several, but our best specimen is a much younger plant than these. It is only 16 feet high, and is the same in diameter of branches, and beautifully furnished from the bottom. It has only been planted nine years, and was then only 30 inches high. The place where it is growing is, however, newly-made ground, and in that particular spot there had been a hollow which was filled up with good, strong turfy loam from the park, and in this it was planted. This Conifer is hardier, and grows much stronger and more rapidly than either the C. Libani or C. Deodara. It does not begin to grow so early in the spring as C. Libani and Deodara, consequently the young growth never gets injured by late frosts as it does on those trees.

Abies Douglasii.—There is a number of very promising specimens in different parts of the grounds; the tallest, 33 feet high, was planted in its present situation eleven years ago. It is very exposed to the south-west winds, and the branches on that side have suffered a good deal. Most of

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the plants here make very long growths, and some in consequence are not so dense as could be desired. One specimen, growing in sandy soil on the highest part of the park, is a very promising plant; the branches are very dense, and the foliage very dark. There is a very great diversity of character among the lot.

Abies Albertiana and *canadensis*.—There are several very promising plants of both.

Abies Menziesii.—There is one good specimen of this very beautiful Spruce. It is growing in strong clay soil. There was even a better specimen, growing also in strong clay soil, but it had to be removed a few years since in consequence of alterations in the place.

Abies Morinda or Smithiana.—There are a few very promising young specimens of this Fir. They are very dense in habit and make free growth, especially the leading shoots.

Cryptomeria japonica.—We had two specimens of this, which stood the winter of 1860-61 uninjured; but they grew so thin that we did not consider them sufficiently ornamental to retain them, and so we had them cut down. C. elegans promises better.

Cupressus Lawsoniana.—There is a number of young plants from 3 to 6 feet high, all growing very freely.

Picea balsamea.—Several small trees planted a few years since.

Picea cephalonica.—There are several very promising young specimens, the tallest being something over 18 feet high, and the same in diameter of branches. For its size, age, health, and vigour, this is really a superb young tree. It is screened from the morning sun by some tall trees growing at a considerable distance from it; this prevents it from budding so early in the spring as it would do if exposed fully to the morning sun, and the late spring frosts, when they occur, are gone before the sun gets to it.

Picea lasiocarpa (Parsonsii or Lowii).—This is one of the most beautiful of all Californian Firs. There are several young specimens growing very freely in a strong loamy soil.

Picea nobilis, and *nobilis robusta* or *magnifica*.—We have a great number of thriving young plants growing in a deep loamy soil.

Picea Nordmanniana.—There is a number of promising young specimens of this Fir; the tallest is 10 feet high, and would have been more, but, unfortunately, it lost its leader last season, I believe through small birds perching on it; it (the lead), was of great length, very soft and brittle, and the slightest weight on its end would snap it off. We have also a great number of smaller plants.

Picea Pinsapo.—Several very fine young specimens, all growing freely in strong loamy soil.

Pinus austriaca.—Of this fine, free-growing Conifer we have a great number of thriving young trees, growing in varieties of soils and situations. It seems to grow best in a strong loam with a clay subsoil.

Pinus Benthamiana.—We have a few plants of this Pine; they grow freely, but so very thin and lanky that we do not think it very ornamental.

Pinus Cembra.—A few good plants. It grows but slowly.

Pinus excelsa.—Several promising plants, which stood the frost of 1860 uninjured. This is a magnificent Pine when fully grown.

Pinus Lambertiana.—There was a good specimen of this here, which had to be removed in consequence of some alterations.

Pinus pyrenaica.—There is one very promising plant of this very beautiful Pine here.

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Pinus Strobus.—A great number of young trees of recent planting, all doing well, particularly those growing in clay soil.

Taxodium sempervirens.—There is one nice plant here. It stood out the winter of 1860-61 uninjured. It is growing in a gravelly soil and a sheltered, dry situation.

Taxodium distichum.—Several thriving young plants.

Thujopsis borealis.—Some promising young specimens of this Conifer.

Thuja Lobbii.—Several very fine young plants of this.

Wellingtonia gigantea.—A number of fine specimens. The tallest is 16 feet high, the next 15 feet, and the next 14 feet; all the others are under this height. We have them growing in a great variety of soils and situations. Those in strong loamy soils are growing the best.

We have also some small plants of Retinospora obtusa, Sciadopitys verticillata, and others; but as we have not had them long, nor planted them extensively, I cannot say much about them. From present appearances I am very sanguine about them.

We have not so great a variety as may be met with in many places; but of those that are highly ornamental and perfectly hardy we have planted very extensively, and, with very few exceptions, no trees could possibly be doing better. With the exception of a few Cedars of Lebanon, all the others have been planted within the last sixteen years, most of them, indeed, within the last ten years, consequently we have no very large specimens; but there are thousands of very promising ones, which, in a few years, will be superb trees. We apprehend nothing from frosts however severe they may be; our worst enemy is the west wind, to which some portions of the grounds are a good deal exposed.

Stourton. M. Saul.

ON STOCKS.

Just now, when seed lists are being searched and orders are being dispatched by intending growers, a few words under the above heading may be of service to those who grow Stocks, but are not intimately acquainted with the classes in which the many varieties are grouped. Seed lists are generally too heavily freighted with "collections of imported Stocks," some of them containing from twelve to twenty-four supposed colours, but of this number only a very few are really distinct and fitted to appear in the garden. In order to get only distinct colours some seedsmen import their own colours—that is, they make a selection of some six or eight of the most decided colours, and make up their own collections. This involves a considerable amount of labour, but the buyer is much benefited by it, as generally the flowers will be of such colours as crimson, white, blue, purple, rose, and similar shades, and not such as ash-grey, brick red, black-brown, and others of dubious character.

The best class of Stocks for general garden decoration is the Large-flowering Ten-Week German, as the imported varieties are termed. The plants grow from about 9 to 12 inches in height, and from 70 to 80 per cent. of them invariably come double. They remain in bloom a considerable time, as in addition to the leading spike of flowers a great many smaller shoots spring out from the plant on all sides, and from this habit they have been termed "branching Stocks." For cut blooms this class is invaluable; and I have known them remain in bloom for a long period when the summer

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and autumn months have proved fine and genial. A dwarfer form of this strain has been termed the "Dwarf Pyramidal Large-flowering," evidently a "selection" from the foregoing. These are dwarfer and closer in habit, very free-blooming, as is the taller-growing strain, and they do not embrace so great a variety of colours, though happily, at least at present, they appear to be composed mainly of decided colours. These representatives of the imported Ten-Week section deserve to be generally grown, for they are eminently useful for out-door decoration, but in hot weather they should be freely watered where the soil is dry or gravelly.

I have seen some marvellously fine things in Ten-Week Stocks of a taller growth than the foregoing, that have been denominated Giant Ten-Week, and well they have deserved the appellation. They grow from 15 to 18 inches high, and the leading spike of flowers is something wonderfully fine. They resulted from a selection out of some of the Continental Ten-Weeks; the seed is now regularly ripened and harvested in England, and the per-centage of double flowers is fully equal to the German-grown kinds. They embrace three colours—scarlet, purple, and white, and are really of great use for exhibition, as well as decorative purposes.

Another English strain, equally fine and valuable, is one styled Pyramidal. They grow nearly as tall as the Giant Ten-Weeks, but branch more from the base of the plant upward. They thus form something of a pyramid in shape: hence their designation. I have inspected these for several years past, and have frequently recommended them to exhibitors of the Stock because of their special fitness for the exhibition table. Confined hitherto to only two colours—violet and scarlet, an accession has been received since last season in the form of a selection from the violet of an azure or pale blue, quite a gem in its way, if the colour of the original type can only be perpetuated, as no doubt it can be, as the other colours were originally selections, and have been transmitted from season to season with the hue of colour unaltered, and the quality of the plants unimpaired.

The very best Intermediate Stocks I have ever seen were also from English strains. The old Scarlet variety, so pleasant to the eye in the spring and early summer months in Covent Garden Market, is now companioned by a white variety of good quality, but, from what I have seen, a little taller in growth. This may have been an accident of cultivation, and not a normal defect of the flower, if a defect it be.

I saw last summer a selection from some German Dwarf Bouquet Stocks of a kind of Annual Intermediate, that, sown early in the spring and grown on in pots, would, I think, flower between the Intermediate and the Ten-Week and Pyramidal varieties. The colour was bright crimson—a very desirable shade, the habit quite dwarf, and yet vigorous and free. When sown at the same time as the ordinary Ten-Week Stock, it flowers a little later, if subjected to the same treatment.

Such weather as we have lately passed through—a kind of winter that had almost gone out of the remembrance of some of us, and had not entered into the experience of others—is almost enough to cause growers of the Stock to give up the cultivation of Capes, and Emperors, and Queens, and Bromptons—the kinds that flower early in the spring. What a general decimation of these there must have been! There is such a difficulty experienced in wintering them, even in mild seasons, that it does tend to curtail the area of their cultivation considerably. Still, some succeed remarkably well, notably, those who save seed, and those who supply Covent Garden Market with the cut flowers from the same.

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The collections of Brompton Stocks are always imported from the Continent, though so much seed is saved in England. The scarlet Brompton generally produces seed pretty plentifully, but the white and purple are both often very scarce. A very fine strain of the scarlet colour is known as the Scarlet Giant, and when it can be obtained true the flowers are very fine, and the colour in keeping with the quality of the flowers.

Some cultural notes must be given next month, as this paper has grown into an almost immoderate length.

Quo.

WINTERING BEDDING PELARGONIUMS.

On paying a visit a short time since to one of the largest gardens in our neighbourhood, I was much struck with the manner in which the gardener wintered his large stock of struck cuttings of Bedding Pelargoniums. Having to bed out about twenty thousand plants every year, and the accommodation for them being limited, he was driven to adopt various shifts and contrivances, and this is one of them.

His Pelargonium cuttings are all struck in the autumn in the open ground. When well rooted they are carefully taken up with as much root as possible, a handful of moss is placed around the roots, and tied with bast, and they are then stowed away as closely as possible in frames. Thrice the number can thus be housed that could be stored away when potted in large 60's, and the plants withstand damp even better than in pots. In spring they are turned out in a sheltered situation, some loose fine soil is shaken well about them, and what little protection they may require is given; likewise now and then a good soaking overhead through the rose. By this mode of treatment the plants required for the beds will be found to have some fine balls of roots, which far more readily attach themselves to the soil than those turned out of pots.

The gardener summed up the advantages of the system thus:—"You want neither pots nor mould; you may stow three in the place of one; may throw them about and break nothing; may remove them with great ease; may save a large amount of expense and labour; and finally, may turn out as good plants as you could from pots." To amateurs especially this simple plan of wintering bedding Pelargoniums, must greatly commend itself.

A. D.

NEW PLANTS.

The cry is, Still they come! We might fancy that the supply must at least diminish, if not altogether fail, when we consider the vast number of the novelties which have been added to our collections during the last quarter of a century. For we do not now speak of New Plants in the shape of Seedlings. Come they do, and come they must, year after year, in myriads, leaving "something accomplished," some advance made or fresh stand-point gained, as the memento of each revolving season; but we rather in this paper refer to New Plants imported from their native homes, and of these we find no diminution in the number of those which have, during the past season, been brought under the notice of the public.

Amongst the many it is of course to be expected that a large proportion will not rise above, if even they reach up to mediocrity; but there are some plants of sterling merit, which will leave their mark on the year 1866, and

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to these we now propose to refer briefly, under the sub-divisions of Stove, Greenhouse, and Hardy plants.

It is amongst Stove plants that the greatest acquisitions have been made, and of these the groups of foliage plants and Orchids have been most highly favoured. Of other Stove plants which will be grown for their blossoms, we have gained two entirely new and very ornamental genera of Acanthaceous plants, which will rival the best of those already grown. *Sanchezia nobilis* is one of them, and is remarkable for its long tubular yellow flowers disposed in large erect panicles, which have their parts subtended by broad ovate crimson bracts. The other is named *Ancylogyne longiflora*, and this, too, bears large panicles of tubular flowers, only the panicles are here drooping, and flowers, calyces, pedicels, and ramifications of the panicle, are alike of a rich vinous purple colour. Both these are from Tropical America, and both have been introduced by Messrs. Veitch & Sons. A third flowering stove plant of undoubted merit, is the *Passiflora fulgens*, introduced from Brazil by M. Linden through his collector Mr. Wallis, and which adds to a somewhat remarkable form of foliage, having the sinuate outline which reminds one of an Oak leaf, a profusion of brilliant scarlet-crimson blossoms, set off with an orange-scarlet coronet barred with white. Nothing that we cultivate resembles any of these; and we might add to them the pretty little *Rudgea* or *Psychotria nivosa*, a native of Parana, shown at the great International Exhibition by M. Linden, an evergreen shrub, with erect stems, elliptic-oblong leaves, and terminal cymes of snow-white woolly tubular flowers.

The year which has witnessed the first public exhibition and recognition of such a glorious plant as *Cattleya Dowiana* marks an era in Orchid-growing. It was, indeed, flowered in 1865 by Messrs. Veitch & Sons, to whom the credit of its introduction is due, but owing to trade exigencies it was only towards the latter part of 1866 that the public were permitted to make acquaintance with the plant, a specimen of which, acquired from the Messrs. Veitch, was shown in blossom by Mr. J. Bateman, and delighted the eyes of all who saw it. It may be described as the counterpart of C. labiata in habit, and in the size and character of its flowers; but the latter have the sepals and petals of a rich nankin yellow, and the broad frilled lip of a uniform rich puce purple, traversed throughout by radiating golden veins. This unique and splendid Cattleya comes from Costa Rica. Scarcely less valuable an acquisition is the *Saccolabium giganteum*, of which the Messrs. Veitch have obtained plants from Rangoon, but which, though in the country previously under the name of Vanda densiflora, has not till now been accessible. It is a stout-growing epiphyte, with the habit of other Saccolabiums, and with densely-flowered pendent spikes of flowers, which are nearly of the same shape as those of Saccolabium violaceum (Vanda violacea), but larger, both sepals and petals being cream-coloured, the latter bearing a row of amethyst-coloured dots. The lip is of a very intense amethyst colour, enlivened by darker amethyst-coloured veins, the lateral ones radiating outwards. The smell is deliciously aromatic, and at the same time remarkably powerful. Very striking in colour and a most showy and ornamental plant is the *Oncidium Marshallianum*, from South America, a species allied to O. crispum, but with large flowers of a rich golden yellow—a colour too little cared for of late amongst new Orchids, but most valuable in the Orchid-house or the exhibition table. Another *débutante* of the season has been the lovely *Dendrobium thyrsiflorum*, which is, perhaps, the best of Messrs. Low's introductions from Moulmein. It has much the habit of D. densiflorum, its lovely

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racemes of white and gold being produced in the same style, but they are larger and handsomer. The year's acquisitions in this department of culture are, however, not yet exhausted, Rangoon having given to Messrs. Veitch the new *Vanda Bensoni*, a commendable species allied to V. furva, with the flowers white outside, yellow spotted and streaked with brown within, while the lip is ruby-coloured marked with purple and yellow spots; and Ecuador having furnished to the Messrs. Backhouse & Son the pretty little *Mesospinidium sanguineum*, a cool Orchid, which will no doubt improve on further acquaintance, and which bears a short branching panicle of glossy rose-coloured flowers, issuing from the base of a prettily mottled pseudobulb.

Among Foliage plants the accessions are very numerous. We may instance first a new Fern, *Adiantum velutinum*, remarkable for its tall stature, its fine spreading decompound fronds, and its dimidiato-oblong deorsely falcate pinnules, quite a major domo amongst the stove Maiden-hairs; and next *Adiantum Lindeni*, another stove Maiden-hair, of elegant habit, but smaller than velutinum, with pentangular tripinnate fronds, and large oblong dimidiate deorsely-falcate pinnules. The first of these comes from Columbia, the second from the Amazons, and both were introduced by M. Linden, and have passed into the hands of Mr. Bull. One of the finest plants in this group is no doubt the *Anthurium regale*, as M. Linden calls it, a plant which, with all the good qualities of A. magnificum, obviously differs from it in the more tapered and acuminated form of its leaves, the colouring and shading being alike in both. *Dichorisandra musaica*, another of Linden's plants, gives us a new and elegant type of variegation, for its deep green leaves are, as it were, marked out with a pattern in mosaic of white transverse zigzag lines, and the plant is one of striking beauty. *Dieffenbachia Weirii*, introduced by the unfortunate Weir, proves to be a very distinct and attractive plant, with leaves apparently smaller than in the other Dieffenbachias in cultivation, and in the best form—for there are more than one—finely variegated in the centre with motley markings of a yellowish green, bordered by the deeper green margin. In *Pandanus distichus*, purchased from the French gardens by Messrs. Veitch & Sons, we get, as has been observed, the elegant Screw Pine, no longer a screw, but spreading out its leaves like a monster fan. In *Acalypha tricolor*, introduced from New Caledonia by Mr. J. G. Veitch, we have another distinct and most characteristic type of variegation, and indeed a new colour amongst variegated plants, its blotches and patches of flame-colour or coppery red, distributed over the broad-surfaced foliage, being quite unlike anything previously known in our gardens, and affording a remarkable contrast when associated with other plants. In *Fittonia argyroneura*, a Peruvian plant, introduced by Mr. Bull, we gain a lovely companion for Fittonia (or Gymnostachyum) Verschaffeltii, with its red-veined green leaves, and a plant of great beauty in itself, for nothing can be more charming than its foliage of bright clear green traversed by carefully-pencilled veinings of the purest white. The *Dracæna albo-marginata*, brought by Mr. J. G. Veitch from the Solomon Isles, is a most promising plant, with white leaf-margins, but has not yet been seen in a well-developed state. Mr. Bull's *Terminalia elegans*, from Madagascar, a shrub, with trifoliate leaves having lanceolate leaflets marked with a red costa, and elegantly reticulated with dark veins on a glossy pale green ground, is, moreover, no doubt a plant of much merit. Finally, we have added to the beautiful genus *Maranta* (including Calathea), not only *M. Lindeniana*, which rivals the exquisitely painted M. Veitchii, but the scarcely less

beautiful *M. illustris* and *M. roseo-picta*; while at the great International Show M. Linden produced no fewer than twenty-five additional novelties of this family, several of which, though not equalling in beauty the species we have named, will be welcome additions to our stoves, and will give us in the Maranta family alone, the means of forming a very choice and varied collection of plants of ornamental foliage.

Of Greenhouse Flowering plants—between which and half-hardy subjects the line is not very easily drawn—perhaps the gorgeous Chilian Amaryllid, *Habranthus fulgens*, introduced by Messrs. Backhouse & Son, claims a first place, as will be apparent when we state that it has flowers of the richest scarlet, and almost rivals a Hippeastum in magnitude. Our collections of greenhouse Bulbs have received further accessions in the beautiful *Sparaxis pulcherrima* and *Gladiolus Papilio*, of Southern Africa, species which, it may be hoped, will serve to engage the sympathies of cultivators once more on behalf of the beautiful South African genera, Ixia, Sparaxis, Homeria, Gladiolus, and their allies, and secure for them a share of the favour of modern gardeners, which they richly merit. The Sparaxis, with its large bell-shaped blood-red flowers in gracefully deflexed panicles, and the Gladiolus with its delicately-tinted and beautifully-marked widely-expanded flowers, are well worth growing on their own account. Finally, in this category, we have to mention two neat trailing species of *Nierembergia*, named respectively *N. Veitchii*, from Tucuman, and *N. rivularis*, from La Plata, the first with obovate-oblong leaves, and long-tubed lilac flowers, and the second with the leaves oblong-spathulate, and the flowers of a creamy white, both half-hardy perennials, which may afford some useful variety where it is always acceptable—namely, in our summer flower gardens.

Amongst New Greenhouse Foliage plants occur several Ferns, and notably two New Caledonian Lomarias, of great interest and beauty. One of these is *Lomaria ciliata*, which promises to be a charming dendroid species, and is remarkable for its curious retusely-lobed fringed fronds. The other is *Lomaria gibba Bellii*, in which one of the most elegant of cultivated species has yielded us a still more beautiful ramose and cristate variety. A third Fern from the same island, *Asplenium novæ caledoniæ*, is scarcely less ornamental, for having its decompound fronds cut up into a multiplicity of rachiform segments, it must necessarily rank amongst the more elegant of its race. These three are plants requiring a warm greenhouse. The more temperate greenhouse and plant case have had a valuable accession in the new *Pteris serrulata polydactyla*, which may be welcomed as a graceful-habited many-fingered form of one of the commonest but yet one of the most elegant and useful evergreen Ferns in cultivation. We have also become acquainted during the past year with at least two variegated Ferns of the half-hardy (possibly hardy), class. These are both handsomely marked, and they are all the more interesting, since before their appearance the honour of representing variegated Ferns in our gardens seemed to have been appropriated by the Pteris family. One of the new acquisitions is *Athyrium Göringianum pictum*, a graceful summer-fronded plant, having triangular pendent bipinnate fronds, the pinnæ marked with red midribs, which have a grey band on either side. The other is *Lastrea Sieboldii variegata*, a stately and striking half-hardy evergreen Fern, in which the broad divisions of the frond are distinctly striated in a transverse direction with white bars. Then we have just seen added to our collections of dwarf pitcher-leaved plants the curious *Sarracenia psittacina*, an inhabitant of the Southern

States of America, a species which presents us with quite a novel feature in that family, for its pitcher-like leaves, which have an incurved limb like a parrot's head, are spread out horizontally from the crown. From its remarkable habit, its singular form, and the pretty veining of its pleasingly coloured leaves, this species may certainly take rank, on the score of curiosity, among the desirable acquisitions of the year. Finally, in this catagory, we must mention the *Coleus Gibsoni*, a softwooded plant, introduced from New Caledonia, and having a more sturdy habit than the favourite C. Verschaffeltii; this has been under trial during the past summer as a bedding plant, and so far as we have seen has met with but partial success. It is chiefly remarkable for the almost black veining on the under surface of the leaves, but is very variable in the amount of colour it presents.

Good Hardy plants of distinct character have not been so abundant as the more tender subjects, which we have already run over. Among Flowering Shrubs there is the Japanese *Desmodium penduliflorum*, which appears to have hitherto borne the winters of Holland, the young growth being annually cut back to the old wood. This is quite novel in character, and very graceful in habit, producing a profusion of summer shoots, which are long, gracefully nodding, and freely branched, and bear trifoliate leaves, and a profusion of pendant racemes of small reddish-purple blossoms. *Daphne Genkwa*, introduced from Japan to the Russian gardens, bears such a profusion of large bluish-lilac flowers that the branches look not unlike sprigs of Lilac; this, therefore, appears likely to prove useful. The French gardens give us two new Mock Oranges, but they appear to be garden seedlings. One is *Philadelphus Keteleerii*, and is said to have semi-double or nearly double white sweet-scented flowers; the other is *P. tomentosus*, also white-flowered and sweet-scented, but with blossoms 2½ inches in diameter.

Amongst Evergreen Shrubs attention has been directed specially to a kind of Portugal Laurel, named *Prunus lusitanica azorica*, which appears to be very much superior both in foliage and flowers to the old Portugal Laurel, and must, therefore, be a valuable addition to that group of most useful plants—the hardy evergreen shrubs.

Among Hardy Trees the Golden Alder, *Alnus glutinosa aurea*, is probably the most striking of our acquisitions, and well adapted to beautify plantations and pleasure grounds, the materials for which, already both extensive and effective, are apparently now engaging some of the attention they deserve. *Populus nivea Solomonii* is likely to be another useful tree in the landscape, resembling the Abele; it is said to have pendent twigs and irregular cordiform leaves, which are shining as if varnished above, and thickly clothed with snow-white tomentum beneath. The golden-variegated *Wellingtonia gigantea aureo-variegata* is another capital subject as a hardy variegated tree, the markings of the branches and twigs being such as to render it really a handsome object, while its growth is not at all sickly, as is too often the case with variegated trees.

We have very little to notice amongst Perennial and Annual Herbaceous plants of the hardy class. Among the former the new striped Grass, *Poa trivialis variegata*, at first named *Cynosurus*, is one of the best and most useful, and being of a free-growing and accommodating habit, either in the flower garden or the plant-house, and having its leaves distinctly and elegantly variegated, this beautiful variety may fairly claim to be regarded as the most charming of all small-growing variegated Grasses. Another Grass of elegant habit has been introduced from China to the French gar-

dens. It is called *Bambusa Simonii*, and produces numerous stems which grow 10 feet high in a season, and have the leaves 10 or 12 inches long, some of them striped with white and others quite green. Of Annuals, the Swan River *Helipterum Cotula*, a slender branching plant, with white or yellow flower-heads, and belonging to the race of "Everlastings," will be probably the most useful.

M.

OUR MONTHLY CHRONICLE.

THE severity of the WEATHER during the first three weeks of the year has been a subject of unusual interest to all classes, rich as well as poor, and not to horticulturists and meteorologists only, with whom even slight climatic variations have an importance which they do not assume in the eyes of other people. Rarely, indeed, has the thermometer been known to descend so low in this country; and for the last half century the only instances of frost of similar intensity near London were in 1838, still remembered by many as Murphy's year, and in December, 1860. On the 19th of January, 1838, the minimum thermometer at Chiswick registered 4½° below zero; on the 28th of December, 1860, 1° below zero; but on the morning of the 5th of January in the present year two instruments alike indicated 11° below zero, as the lowest point reached during the previous twenty-four hours—a degree of cold never before recorded near London. Other thermometers in the neighbourhood indicated a similar temperature, and even so early on the evening of the 4th as five o'clock, the thermometer was below zero. It may here be observed that there is much difficulty in obtaining a really accurate thermometer, simple as the instrument is, and that even when such an one is obtained, some care is necessary to prevent its indications being affected by radiation from buildings and other sources of heat, and by the mode in which it is hung.

The late frost was most severe in the valley of the Thames, and it would appear that it reached its greatest intensity at Chiswick, which lies in a sort of basin, with the high grounds of Acton and Ealing to the north and north-west, and with higher ground, likewise, to the south and east. Into this basin the cold air probably descends by its superior gravity, and accordingly frosts are there peculiarly severe, much more so than on the higher ground adjoining, and in spring they prove very destructive to fruit-tree blossom where the trees are not protected. The common impression is that cold increases with altitude, and this is undoubtedly true as regards mountains and other considerable elevations above the level of the sea; but in the case of what may be considered mere depressions of surface, it is probable that the greater weight of the cold air causes it to descend and produce a lower temperature in the valley than on the higher ground, whilst the warm air of the valley, being lighter, would float upwards and more than counteract the mere effect of elevation—in fact the high ground would not be, as mountains are, cut off from the radiation of heat from the rest of the earth, but provided with a natural source of warmth in the air heated in the valley, both by the earth's radiation and by the sun's rays. Some experiments made at Chiswick a few years ago appear to confirm this view, for thermometers very carefully compared with each other and with the standard instrument at Kew, and fixed at every 5 feet on a pole 30 feet high, were found almost invariably to register a higher temperature during frosty weather towards the top of the pole than nearer the ground.

At other places near the Thames the severity of the frost was greater than in parts of the country usually more cold: thus at Slough the thermometer fell to 8° below zero, at Staines to 7° below zero, at Cobham to 6.8° below zero, at Wallingford to 5° below zero, at Hammersmith and Maidenhead to 3° below zero, at Dorchester, Oxfordshire, to 2° below zero, at Maidstone, on the Medway, to zero, and yet on the higher ground of Camden Town the thermometer did not fall below 6.7°, whilst on the very summit of Notting Hill it was no lower than 9°. In Yorkshire Mr. May, of the Hope Nurseries, Bedale, recorded a temperature of 5° below zero, and in other parts of the country the cold, though not so remarkable as near the Thames, was still very great, as will be perceived by the temperatures recorded at the following places:—Downham Market, 2° below zero; Laverstoke, Hants, 1° above zero; Leominster, Herefordshire, 3°; Street, Somerset, and Brigg, Lincolnshire, 3½°; Sawbridgeworth, Southampton, and Winchester, 4°; Berkhamstead, 4½°; Wimbledon, 5°; Cambridge, 8°; Wickham Market, Oakham, and Exeter, 9°; Plymouth and Bridport, 11°; Liverpool, 12° Norwich, 14°. In Scotland the thermometer also fell very low; thus with Mr. Anderson, of Meadow Bank, near Glasgow, it stood at 4°, whilst at Haddington on the east coast it was no lower than 9°. Even Ireland, the

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climate of which is generally mild as compared with most parts of England, owing to the influence of the Atlantic Ocean, was not exempt from the visitation of severe cold, for at Nenagh and Armagh the temperature was 1° below zero, but at Mullingar and Monkstown it was no lower than 11° in the one case and 17° in the other.

Notwithstanding so general and severe a frost, it seems very questionable whether the damage to vegetation will prove so great as might be anticipated, for the earth was in most parts covered with a thick mantle of snow, which would keep the ground warm, and prevent injury to the roots, as well as to some extent protect the leaves and branches. Nevertheless, Laurels and other evergreens have been generally much injured, and in several instances killed, and even such hardy vegetables as Brussels Sprouts, Sprouting Broccoli, Savoys, and even Scotch Kale, have been destroyed in some places and much injured in others. Rose trees have also suffered severely, and in Yorkshire large numbers are stated to have been killed, especially varieties belonging to the Bourbon, Noisette, and Tea sections.

Crystal Palace.—Almost coincident with our last issue, the tropical department of the Crystal Palace, with its Palms and Ferns, its Parrots and Chimpanzee, its big tree and its big images, was destroyed by fire. Alas, for the remnant of Loddiges' Palms, which perished with the rest! Mr. Fuller has originated a movement for raising a public subscription in aid of rebuilding the portion destroyed with every prospect of success. The restoration of the Palace, indeed, may be said to be of national importance, so greatly has it tended to the refinement and social progress of the people. Many valuable plants will no doubt be contributed from private gardens, to replace, as far as possible, those which have been so unfortunately destroyed.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

The heat which the sun's rays impart to the surface of our globe is as a general law greatest at the equator—that is, where they strike the body of the earth in the nearest perpendicular direction, or in the greatest number in a given space. Individually they are perhaps equally as powerful, probably more so, after passing through the clear air of the Polar regions as they are after reaching the earth through the vapour-loaded atmosphere of the tropics, but in the former case comparatively few rays can take effect, the direct action of their main body being intercepted by the globe; so that a level surface in the Polar regions can only receive the few which impinge at a tangent in an almost horizontal direction. Whilst decrease of heat is general from the equator towards the poles, it is not uniformly so in accordance with the degrees of latitude; many circumstances interfere with such regularity—hill and dale, mountains and forests. The shelter from sun and wind which these afford, tends to produce a great diversity of climates under the same parallel of latitude. Some winds follow a long track over continents and lands, where under a bright sun and vapourless sky only such vegetation can exist as Cacti, which retain their succulence in the midst of sandy deserts. On the other hand, the track of some winds is far over the ocean, till loaded with moisture they reach the land, forming then a climate moist and shaded, the reverse of that mentioned as the abode of Cacti. Where these bloom with splendour in their arid sunny deserts, Orchids would, if transported thither, appear as if parboiled in a single day. Such difference of climate may occur on the very same parallel of latitude. The one may be termed the extreme of heat and dryness, the other that of heat and moisture, corresponding to the *Dry Stove* and *Moist Stove*. Therefore plants cannot be grouped according to latitude; elevation above the level of the sea must be taken into consideration, as well as proximity to, or distance from, the equator; bearing in mind that the higher the colder. By so doing the climate natural to most plants will be known with tolerable accuracy, at all events sufficiently near to guide within safe limits. In accordance with these remarks the temperature for the moist stove may fall to 60° or 65° at night, and rise to 70° by day; but a slight shading will be advisable for plants not indigenous to sunny regions. Achimenes, Gesneras, Gloxinias, &c, may now be started. *Orchids.*—The temperature above mentioned for stove plants generally will be suitable for Orchids, only in cases of a very clear air and bright sunshine, a little shading will occasionally be necessary. Dry turfy peat should be procured, so that by beating the fibrous part may be separated for potting, which should now be commenced and proceeded with, as the respective kinds exhibit signs of fresh growth. This will be the surest guide for the regulation of the operation. Such kinds as are coming into bloom should be in the coolest part of the house, or removed to a cooler structure. Covering the glass at night,

as recommended last month, will be still of great benefit so long as the nights are frosty, for otherwise in frosts of great intensity, so common this winter, rendering a great amount of fire heat absolutely necessary to maintain the lowest indispensable temperature, an excessive degree of dryness in the air of the house must result. It should be borne in mind that cold glass is a rapid condenser of the moisture existing in the enclosed atmosphere, and the colder the glass and warmer the air, the more rapidly and completely is the moisture abstracted from the air by which the plants are surrounded. Few plants, except some such as Cacti, can long remain in health in a hot atmosphere deprived of its natural moisture.

GREENHOUSE.

It is almost needless to caution those who have had their hot-water pipes burst by the late intense frost, to be careful that such occurrence do not again take place. The great trouble, expense, and inconvenience which this mishap occasions will not readily escape recollection. To make sure, it is better to err on the safe side, and see that the water in pipes for the coolest greenhouse may not fall below 40° in frosty weather; then if by accident the fire should go out there will still be no danger from freezing, nor will the inmates be over-excited by such an amount of heat. Look over the plants regularly to see that none are in want of water, but avoid giving now or at any time water that is colder than the air of the house; let it rather be 2° warmer. The temperature may be 45° or 50° in the day, and with sun it may be allowed to rise to 55°. The sun may be strong enough to raise it much higher; in that case take the opportunity of giving plenty of air, but shut up the house in good time, so as to economise as much solar heat as possible, without stimulating the plants beyond what would be proper; for by so doing less fire heat will be required, compared with which sun heat is not only cheaper, but vastly superior as regards the constitution of the plants. Plants of a succulent nature, such as Cacti and Kalosanthes, should be kept at the driest part of the house, where as much sunlight can reach them as can be obtained. The glass should be kept clear of any accumulation of soot or smoke. Of water these plants will require but little; give none but when they are dry. Leschenaultias, Boronias, and Crowea saligna should be placed at the warmest end of the house if a warm greenhouse is not at command for such plants, as well as others that may be wanted to bloom early, such as Acacias, Kennedyas, Hoveas, Pimeleas, &c. Azaleas for early flowering may be introduced into a peach-house, and afterwards, as they will bear an increased temperature, into a vinery at work. *Cinerarias.*—The utmost vigilance will be necessary to prevent the attacks of green fly. This pest should receive no quarter. Fumigation must be frequently repeated. Occasionally they may be treated with a dose of snuff or tobacco dust. *Ericas* must be closely watched and most carefully attended to as regards temperature, air, and water. Those sorts that are commencing growth may receive more water than those that are not; and air must be given, so as to carry off all moisture that would otherwise be stagnant. Apply sulphur for the prevention of mildew, and keep the house very clean, and free from all decaying substances.

CONSERVATORY.

Whilst there is little gaiety from plants out of doors, those in the conservatory should be arranged to produce the best effect. There should be in flower forced Camellias, Chinese and hardy Azaleas, Roses, Deutzias, Honeysuckles, Orange trees in fruit and showing flower, Persian Lilacs, Jasminums, Chimonanthus fragrans, &c. With these may be introduced with good effect Richardia æthiopica, Chinese Primulas, Hyacinths, Narcissi, Jonquils, and Neapolitan and other Violets. With such plants an assemblage may be formed combining great beauty with delightful fragrance. It is needless to say that the display should be maintained by removing such as begin to get out of flower or in the least to fade, and these should be replaced by plants just coming into bloom. Prune, whilst the sap is comparatively at rest, the tops of all plants that require such to be done. See that there is a sufficient stock of sand, peat, and loam for shifting, and fresh dressing, which operations will have to be very generally performed in this and the following month.

PITS AND FRAMES.

These are convenient for many very useful purposes, and they should be variously constructed for affording different temperatures and degrees of moisture. Those for bedding plants should with only moderate temperature have a full command of air, which should be given at all favourable opportunities when the weather will permit, in order to drive off damp, but in doing this the temperature must not be allowed to get so low as to check all movement of the sap; therefore gentle heat must be supplied to maintain the temperature of the air of the frame sufficiently high for this purpose in cold weather, and at times a little above the temperature of the external air. If, occasionally, this should get suddenly higher than the interior of the pit, and consequently higher than that of plants it contains—if this should happen, moisture will be deposited on the foliage, and damping off, so much to be dreaded, is likely to be the consequence.

FORCING.

Vines that are now to be started may be allowed a somewhat higher temperature than those of which the forcing was commenced

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last month, for the season in which the Vines naturally push without artificial heat will sooner arrive. The night temperature may therefore be limited to 50°, and that of the day may be 60°, or with sun heat 65°. Syringe daily, using water of about 60° or 65°. Disbud Vines in the earliest house that have pushed shoots so far as to admit of a selection being made of the strongest and best situated; tie in those that are long enough to admit of that being done; and those that have taken a decidedly wrong direction must be inclined to the right one by degrees. Stop those first that are most forward, but take care to save the leaders. Keep a moist growing atmosphere in the house; if the air is too dry moisture may be raised by syringing the paths and surface of the border. *Pines.*—Fruiting plants should have a bottom heat of from 75° to 80°, and a top heat of 70° at night and 75° in the day, or 85° by sun heat. Successions will succeed very well with a bottom heat of from 70° to 75°, and an atmospheric temperature of 65° to 70°. Water sparingly, using what is allowed as warm as the air of the house. After syringing, carefully avoid draughts of air. Shut up till the surface of the leaves is dry. Prepare soil for shifting the succession stock in the end of this month, or early in the next. *Peaches and Nectarines.*—Commence with a temperature of 45° at night, and gradually increase it to 50° and 55°, but till flowering is over let the rise of the temperature be slight.

KITCHEN GARDEN.

Manure, dig, or trench all vacant ground as the weather will permit. Sow in frames for an early crop, Brussels Sprouts, Early York Cabbage, Walcheren Broccoli, Lettuces, dwarf varieties of early Peas, such as Gem; and in the open ground, Early Ulm Savoy, Early Horn Carrot, and Radishes on a warm border, covering with litter. Plant Early Potatos, Garlic, Shallots, and Jerusalem Artichokes. Renew plantations of Herbs generally; all fibrous-rooted ones may be propagated by division of the roots; they grow with greater vigour than when not thus renewed. Plant Horseradish, placing the crown of the cuttings 1 foot below the surface.

FRUIT GARDEN.

Provided the ground is in condition, no opportunity should be lost of planting all kinds of hardy fruit trees intended to be removed this season. In taking up the trees see whether the rootlets do not proceed in a direction away from the stem. It will be found that such is generally the case; then in planting let the rootlets be spread out in a similar direction, sloping a little downwards over a slightly convex surface formed on the bottom of the hole, as if like a shallow basin inverted. Over this convexity the roots should be regularly spread. Prune, if not already done, all sorts of fruit trees, and without delay, Apricots, Peaches and Nectarines, for these naturally push at an early period of the season; their sap is early in maturity, and when it is in full flow its channels ought not to be interfered with. Therefore lose no time in finishing all cutting of branches that are necessary to be removed, so that the sap may flow in channels where the development of buds for wood and fruit is desirable. Where borders are apt to get too dry, and those occupied with Apricot trees are more especially so, it will be of great advantage if the subsoil be thoroughly soaked with water; manure water may be employed if the trees are not in an over-vigorous state. This will promote the health of the trees, enable the blossoms to set, and prevent the attacks of red spider. In pruning Peaches and Nectarines, shorten the young shoots of last summer's growth, which are those on which the fruit will be produced in the ensuing summer, and at the bases of which the buds for succession shoots will push; without shortening the shoots, the buds would not push, and the branches would be naked.

FLOWER GARDEN.

Plant and prune ornamental trees, shrubs, and creepers previous to digging the ground. Prune and train climbers. Trench ground for lawns, if any fresh turf is to be laid down. New walks may be formed. If the weather is not unfavourable herbaceous plants may be taken up, divided, and newly arranged. Plant Anemones and Ranunculuses. Protect Russian and Tree Violets, and other tender plants from severe frost.

FLORISTS' FLOWERS.

Auriculas. — Top-dress with fresh soil. Protect from frost, but give plenty of air when the weather is favourable. Repot young plants wintered in small pots. *Carnations and Picotees.*—Trim off all decayed portions of foliage; then stir and refresh the surface of the soil; give plenty of air on all favourable opportunities. *Fuchsias.*—Propagate for general stock; specimen plants should be pushed along in gentle heat. *Hollyhocks*, sow; repot autumn-struck plants, using good rich substantial soil; and avoid all but such plants as are of robust stocky growth; continue to propagate cuttings from old stools; strike these cuttings in moist bottom heat. *Pansies.*—If the weather is mild, plant out and repot. *Pelargoniums.*—The young stock will now bear a shift, and plants that are being grown for exhibition should now be in their blooming pots, and have the heat gradually increased. *Pinks.*—The late severe frosts will doubtless have loosened the soil about the roots; let it, together with a little fresh compost, be firmly pressed. After this has been done to plants apparently almost dead, they often recover surprisingly well. *Tulips.*—Protect from heavy rains, and see that the bed is sufficiently drained.

Beurré Clairgeau Pear.

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BEURRÉ CLAIRGEAU PEAR.

WITH AN ILLUSTRATION.

Take it for all in all, the Beurré Clairgeau is a Pear which ought to have a place in every garden which is not of the most limited extent. It combines in itself so many of the qualifications that go to make a good fruit, that wherever there is room it ought to find a place. Its size is of the largest, and its colour the brightest, its form is most graceful, and its quality in certain situations is excellent. For the dessert it has few rivals, and as its season extends from the beginning of November till January, it is invaluable for keeping up a supply. The tree is of remarkable fertility, and of moderate size. It does not produce a very vigorous growth, and is consequently well adapted either for bush culture, or for pyramids. To have the fruit in the finest possible condition, it ought to be grown in one of these forms. We have seen dwarf bushes laden with fruit equal in size and colour to that represented in our figure, where proper attention has been paid to thinning and exposure to the sun's rays, and particularly so when it was so near the soil as to benefit from the radiation. On espaliers, or against an east or west wall, we have also seen it produced in high condition.

This beautiful Pear originated at Nantes about the year 1838, in the garden of Pierre Clairgeau, a gardener in Rue de la Bastille of that city. It first fruited in 1848, and that same year he exhibited it on the 22nd of October at the Horticultural Society of Loire-Inférieur. It is believed to have been produced from a cross between the Brown Beurré and Duchesse d'Angoulême. The original tree was purchased by M. De Jonghe, of Brussels, and formed part of his collection at St. Gilles in the suburbs of that city.

NEW FLOWERS.

The record of the past year which gives an account of the leading New Flowers will have a special interest for the readers of the Florist and Pomologist, seeing that it is one of its peculiar features to treat of *New Flowers*. Such a record must be an evidence that a multitude of aspirants for public favour have appeared, and that a certain number of these are destined to "make their mark" in "floricultural annals." These favoured ones it is the special object of this paper to notice.

That grand old flower the Auricula has received an accession in the form of two very handsome Alpine varieties, the productions of Mr. Turner. The one, *Defiance*, is a rich dark violet-shaded flower, with large stout pips, of fine form; the other, *Victorious*, is a bright crimson chocolate, a dashing-looking flower, with large well-formed pips, and a conspicuous lemon centre. Both got the "blue riband" of floriculture—a first-class certificate.

Azaleas, scarcely as numerous as usual, have been well represented by *Her Majesty*, a pure rosy lilac, edged with white and spotted with crimson—a beautiful flower of first-class quality, which we have lately figured; *Charmer*, bright amaranth, of fine form and substance, free-blooming, of good habit, and a useful accession also as a new shade of colour; and *Vivid*, rich glowing scarlet, a gem in point of colour, the flowers of good size and fine substance. Mr. Williams's three new varieties—viz., *Andersoni*, *Princess Alexandra*, and *Princess Helena*, I have not seen, but report says that Princess A. is worth a florist's eye, it being what may be termed a gigantic form of

Elegantissima slightly striped with deep crimson, and of very fine form and substance. Those who make the Azalea a speciality should look out for this variety, as it will, no doubt, appear at the spring shows.

Unfortunately, the CHRYSANTHEMUM blooms at a period of the year when there is scarcely a show at which to exhibit the new varieties. What I saw of some of them proves at least that "higher levels" of improvement are being attained. *White Princess*, a sport from the well-known variety of the latter name, is a good addition to the pure white flowers; it is incurved, has fine substance, and is of large size. Mr. Salter's *Purpurea elegans* is a finely-formed recurved flower of a very fine shade of colour—dark carmine violet, a striking hue, much wanted at exhibitions of the Chrysanthemum. *Lady Talfourd*, a splendid incurved flower, is one of Mr. Salter's greatest triumphs as a producer; the colour is silvery lilac pink, and the flower-heads are large and very symmetrical—it had a first-class certificate. *Gold of Ophir*, a fine dark golden orange incurved flower; *Countess of Warwick*, also incurved, colour ivory white; *Madonna Mary*, sulphur white with primrose centre, a large incurved flower; and *Enamel*, colour delicate transparent blush, also incurved, make up, I think, the cream of the remainder of Mr. Salter's new flowers. Nor are the Pompon varieties neglected by him. Slowly, but surely, does the stream of improvement set in in this direction. *Judy*, a very full bright yellow flower, and *Little Creole*, dark reddish orange, represent points gained; the first on account of its colour, the last for the substance of its florets, and its dwarf habit. The strange-looking Anemone-flowered kinds, too, that to my mind cannot be made to look aught else but something akin to abortions, have their fanciers whose tastes must be recognised; and for these Mr. Salter presents two new kinds—viz., *Aglaia*, rosy blush, with full high centre, and *Stella*, claret colour, the centre of the flower being much lighter in colour.

That really beautiful and useful spring flower the CINERARIA, seems to be almost shelved. Scarcely a seedling Cineraria of any pretensions was seen during 1866 at any meeting of the Floral Committee. The record here is therefore a blank one. Messrs. F. & A. Smith announce a new set, but they appear to have discontinued exhibiting their flowers as seedlings.

With the CLEMATIS, Messrs. G. Jackman & Son and Mr. Thos. Cripps have both done praiseworthy things. The *Prince of Wales* and *Rubella* of the former are valuable acquisitions. The first of these has flowers of a rich deep violet purple, with red bars running along the centre of each sepal; the latter is a rich velvety claret colour, of very deep hue, and flowers very freely. Thoroughly hardy, flowering freely, and making rapid growth, they are admirably adapted for out-door cultivation under favourable circumstances. Mr. Cripps has been busy with C. lanuginosa, and under the name of *Lady Caroline Nevill* has produced a form of it with delicate lavender flowers marked with a darker stripe. Each of these *three* varieties was awarded first-class certificates. *C. tunbridgensis*, another of Mr. Cripps' hybrids, has flowers of reddish purple with a blue stripe up the centre of each petal.

New DAHLIAS are as numerous as ever. The following were awarded first-class certificates, a pretty sure index of their value—viz., *Clara Simons* (Keynes), a light ground variety with deep edging of dark crimson, an exquisite flower; *Mrs. Boston*, (May), lilac rose, a very sure exhibition flower, fine form, and very constant; *Paradise Williams* (Keynes), clear claret colour, very novel and distinct, a capital show flower; *Vice-President* (Keynes), a bright-looking buff flower, a decided improvement on *Chairman*; and *Princess*

of Wales (Keynes), pale blush ground slightly edged with lilac, a very pretty flower of fine form. The following Fancies received the same award:—*Butterfly* (Keynes), a light ground flower with scarlet and brownish crimson stripes, large, full, and of fine form; and *Miss Ruth* (Eckford), yellow ground tipped with white, a free and constant flower. Second-class certificates were awarded to the following:—*Aurora* (Rawlings), a medium-sized flower of good form, colour bright rose; *Flambeau* (Turner), one of *the* flowers of the season, colour rich deep chrome yellow, heavily edged and tipped with scarlet lake, a most striking exhibition flower. *Flossy Gill* (Keynes), a beautiful light ground flower, edged with pink, and of fine form; *Gazelle* (Keynes), a constant flower of good quality, colour clear fawn; *Harriett Tetterell* (Keynes), blush ground deeply margined with dark purple, a flower likely to become a standard variety for its obvious useful qualities; *Hon. Mrs. G. Wellesley* (Bragg), base of the flower white, heavily edged and tipped with purple, good petal and outline; *John Sladden* (Rawlings), a dark crimson flower of excellent form, scarcely shown in good condition as a seedling; *Lady Jane Ellis* (Eckford), a promising show flower, ground colour creamy white tipped with purplish rose; *Lord Lyon* (Fellowes), rich violet, a decided acquisition in point of colour, constant, and of fine form; *Mrs. Burgess* (Burgess), a very novel flower, the body of the petals being lilac with an edging of maroon; *Mrs. Thornhill* (Pitfield), a delicate ground flower, the edges of the petals being beautifully feathered with pink; *Starlight* (Turner), a "taking" yellow ground flower distinctly tipped with lake; *Valentine* (Fellowes), a pretty light flower, almost pure white, with a thin edging of deep purple, a flower of excellent properties; and *Vanguard* (Wheeler), deep purplish maroon, a large but somewhat flat flower as shown. To these may be added the following that did not receive any award of merit as far as can be ascertained:—*Commander* (Bragg), a large, bold, rich orange buff flower; *Mephistopheles* (Headley), almost black, valuable only for its colour, but a good bloom would "tell" as a front-row flower; and *Picotee* (Fellowes) a very delicate and handsome flower, colour pale primrose lightly margined with purple. Judging from the awards, it may be safely inferred that seedling Dahlias of the past year have possessed more than an ordinary share of good qualities, and among these may be classed pre-eminently, I think, that great desideratum—novelty of colour. The Fancy varieties have not evidenced, in so marked a manner, the march of improvement. *Bessie Wyatt* (Keynes), was the only one awarded a second-class certificate; it is a full-sized white ground flower, with red stripes. *Plausible* (Keynes), is about the best flower of those "not placed," to use a racing phrase. The ground colour is a mixture of red and crimson with purple stripes, and Mr. Keynes thinks very highly of its worth.

R. D.

(*To be continued.*)

REMARKS ON FRUIT TREE CULTURE.—No. 18.

It is probable that my last remarks may be looked upon as rather rambling and discursive, if not reiterative, for which, however, I make no apology, as I know that it is only by a constant reiteration of a truth that it becomes printed on the brain, or, in other words, impressed on the memory; and as I write for recruits and not for veterans (many of whom know better than myself all about it), I would direct the attention of all young practitioners to the periodical recurrence of great fruit years, and to

invite them to study the causes which contribute to produce them, and the means whereby we may be enabled to counteract the evil results which inevitably follow when the trees are allowed to follow out those tendencies unchecked.

Now with regard to the causes, there is no doubt on my mind but that they arise from the fact that there are certain seasons which are more favourable than others for the production of fruit-bearing wood, which in an ordinary way is the result of a very hot and dry summer and autumn followed by a favourable spring, in which the fruit sets most abundantly, and the tree, in proportion to its strength, will bring a great quantity to an inferior degree of perfection.

Now it is in seasons like this that the skilfulness and foresight of the manager are most required; for instead of taking a large crop he will wisely reduce it to rather less than what would be called a fair crop for one season, in order that he may have a reasonable chance of an average crop the next year. Otherwise the overborne exhausted trees will be undergoing the process of renovation, and of course it will be called a bad fruit year. When trees are under control, and the principles which regulate their growth properly studied and acted upon, we ought to hear less about the periodical returns of good fruit years. There is no doubt but that climatic or atmospherical conditions do very much influence this state of things, and will sometimes baffle the very best of management, but it is seldom that such extremes occur as cannot be counteracted by some means or another, either by supplying those elements which are deficient, or taking means to ward off the effects of such as are in superabundance. For example: if it should be a long-continued heat and drought, we have the power of supplying such an amount of moisture to the roots, and syringing to the foliage, as will ensure to the tree that amount of aliment necessary to enable it to keep up a free development of growth in spite of adverse natural conditions; the tendency, therefore, to the formation of an undue amount of fruitful wood will be checked, and the functions of the tree be carried on as though there were no disturbing influences at work.

The influences exercised by extremely wet seasons are more difficult to counteract, because they are generally accompanied by a low temperature, which prevents the proper ripening of the wood, and interferes with the formation of healthy fruit-buds. Fortunately such extremely wet seasons are rare, and when they do occur their evil effects may be partially prevented either by a waterproof covering to the roots, or by throwing up the earth of the border into a steep slope, so that the water may run off freely. But I would here observe, that if the border is thoroughly drained and the soil not too retentive of moisture, a vast amount of water may percolate through it without leading to any serious effects. On the contrary, if badly drained or not drained at all, the best manager in the world would be baffled, unless the rain water could be carried away without entering the border, and also for the simple reason that, if it cannot be carried away, the roots would become clogged and unable to perform their proper functions, whereby the well-doing of the branches would be affected.

The prevalence of a very low temperature in the spring months, but particularly when attended with early morning frosts, is a great drawback to success, and can only be combated by an efficient and moveable protection. This is more especially necessary for the fruit under consideration, and also for Peaches, because both Apricots and Peaches expand their bloom very early, and great watchfulness is required in order to apply protection

at the proper time; for even this necessary work may be overdone, since the trees should have the credit of being able to submit with impunity to the various changes of temperature and atmospherical conditions to a certain point, up to which they will be far better left alone; but when that point is likely to be exceeded as regards lowness of temperature, protection is the only means of saving a crop; this, however, should be removed as soon as the cause which led to its adoption no longer exists.

The proper time to apply protection is so much influenced both by temperature and peculiar conditions of the atmosphere that no general rule can be laid down as an infallible guide; it must be left to the judgment of the operator. For example: 4° of frost immediately following upon a wet and stormy day, such as we often experience in March, when the atmosphere is fully charged with moisture, will be more injurious to the blossom and young fruit than 8° with a perfectly dry atmosphere accompanied by a slightly brisk wind. I have known Apricots to submit to the latter temperature unprotected and uninjured, during the prevalence of a dry and easterly wind, but at the same time I would be sorry to place that or even 4° as my minimum of temperature when protection would become necessary; for although the amount of injury done by the frosts in spring is not so much the effect produced by so many degrees of temperature below freezing point, as by certain contingent atmospherical conditions in combination therewith, yet it is always best to be on the safe side, and apply protection whenever there are indications of even a slight frost, but not otherwise.

Redleaf. JOHN COX.

PRESERVING DAHLIA ROOTS.

ALLOW me to invite attention to a mode of storing Dahlia roots, which I have now practised for some years, and by which I find they may be had as sound when taken out in spring as they were on the day when they were put away, and this by a very simple plan, which is in the power of every grower to adopt. Before, however, I state the particulars, I will explain my former system of preserving Dahlia roots through the winter. When the plants became damaged by frost I took advantage of the first fine day to take them up, carefully cleaning the mould away from them, and placing them in a dry airy place for a week or two, in order that the fleshy roots might become perfectly dry before they were stored. I had no more convenient place in which to keep them than a box placed in a stall of an empty stable, and here they were covered over with dry sand and straw. By following this plan I have succeeded tolerably well, and, although some of the roots have become shrivelled and nearly dead when taken out, yet by placing them in a sweet moist heat they would for the most part start into growth, the shrivelled ones, however, not breaking so freely as the others, nor producing such good cuttings, while some of them being late, did not acquire strength to produce flowers in the same state of perfection as the others.

This induced me a few years back to try another plan of preserving them. As soon as the frosts came to destroy the beauty of the flowers, I immediately took up the plants, and cut off the tops at about a foot above the root, cleaning the mould off them as much as I could, but not so as to injure them, and storing them again in the stable, but without drying them at all. The box I kept them in was 14 inches deep, and this I now filled up with coal ashes, which had been previously prepared by damping them as they were

collected from the fires, and then drying them in a shed before they were used. In this material the Dahlia roots lay buried for a period of four months, and when they were taken out of the box and examined, I found that not one of them was shrivelled or spoiled in the slightest degree. This was about the beginning of March. When put into a frame which I had at work, they all broke freely and vigorously, from which I anticipated an early and abundant display of flowers, in which I was not disappointed.

The above method of preserving Dahlia roots, which I have ever since adopted, is equally applicable to a great many other bulbous and fleshy-rooted plants which have to be taken up and protected through the winter, but being dormant do not require to be kept in a greenhouse.

H. L.

CYPRIPEDIUM INSIGNE.

It is scarcely possible to over-estimate the merits of this old winter-blooming Orchid for decorative purposes. In December I introduced into my sitting-room, which is not one of the warmest, a plant just on the point of expanding its chaste slipper-like flowers, and it has far exceeded my expectations regarding its suitability as a decorative plant for such purposes. The blossoms are scentless, and this is the only drawback to the plant, for in every other respect it is all that can be desired.

The cultivation of Cypripedium insigne is extremely simple, and propagation is readily effected by small offsets at almost any season, but February and March are on the whole the most suitable months. My plants are growing in common loam, leaf mould, silver sand, and broken potsherds, and are well drained. Even in this common and generally-attainable compost they thrive remarkably well. During the early part of the season this Cypripedium requires plenty of heat and moisture, and shade from excessively bright sunshine; it grows well under the shade of Vines, as well, if not better, than in an Orchid-house. About the middle of October the plants may be introduced into a warmer atmosphere, that of a warm sitting-room for instance, and by the first or second week in December they will reward the cultivator with the sight of their exquisitely shaped blooms.

For the decoration of rooms I would not recommend too large plants to be grown, but rather to divide them more frequently. Large plants are not in general so suitable for the purpose as those of smaller size.

Wrotham Park. John Edlington.

EFFECTS OF THE LATE SEVERE FROST.

NORTH NOTTS.

Although the thermometer did not descend so low here as in 1838, 1860, and 1861, the effects of it are more marked, especially on vegetables, than in those years. The lowest temperature registered here was on the 4th 8°, and on the 14th 7°, or 25° of frost. All the Winter Broccolis not lifted or protected are killed, and even the hardy Kales, Brussels Sprouts, and Savoys are much browned and cut up. Owing to the nature of the summer, and rainy mild autumn, I was fearful that a severe frost might set in suddenly in January, and, therefore, prepared for warding off its attack. In the middle of December I had an abundance of Backhouse's early Broccoli, Snow's Winter, Early Penzance, and Osborne's New White, all coming in together, and therefore had the most promising lifted and put

into by the heels in a north border, with some litter handy for covering should frost set in. This covering with the snow on the top has preserved them quite safe, and I shall now have a good supply till the late hardy spring sorts come in.

The universal destruction of vegetables this year has no doubt arisen from the nature of the autumn, for they kept on growing, and had no check from frost or drying cold winds till the end of December. Being so succulent, and the frost setting in so severely on the 1st of January, followed by the rapid thaw on the 6th, to be succeeded again by the severest frost of the season on the 14th, it is no wonder that rapid changes affected them injuriously.

The most severe frosts of the last and present centuries have in general set in after wet summers and autumns, when the soil was saturated with water, and the rivers and brooks were filled to overflowing.

I hear from every quarter that Roses, like vegetables, have been much injured or killed, especially the Tea-scented and Noisettes on standards. After the great destruction of Roses in 1860 and 1861, I was determined to give up the planting or propagation of the lumpy-headed standard ones, and only grow them on their own roots or budded low on the Manetti stock, as pillars or low bushes. There is no comparison between the beauty of a pillar Rose and a cabbage-headed standard one, and in severe frosts they are safe to spring again from the roots, or from where they were protected by litter or snow. It is astonishing what a little covering will protect tender Roses, when put on in the shape of fern, moss, or fir branches, and all who lose them in severe frosts have only to blame themselves for their want of care.

The new Japanese Conifers and shrubs appear to have weathered the cold safely in this locality; likewise Araucarias, Deodars, Cypresses, and Laurels. One Cupressus (McNabiana) is much browned, as are Magnolias, Cotoneasters, and young variegated Hollies, while the only shrub really killed to the ground is the Sweet Bay.

Welbeck. WILLIAM TILLERY.

WEST YORKSHIRE.

I AM happy to say that very little injury has been done here by the late frost. The lowest degree of temperature recorded here was at ten o'clock on the night of the 1st of January, when the thermometer indicated 22° of frost. The whole of the Coniferæ here, with the exception of a few Cedars of Lebanon and Mount Atlas, have escaped unhurt. Among a large collection of Berberises, I find the foliage of some plants of B. Fortunei are browned; a few plants of B. Wallichii standing in rather exposed places are also slightly touched. I never saw the common Laurels look better than they do at present, though in 1860 the greater part were killed to the ground. Portugal Laurels are also untouched. Some plants of Laurustinus and Bays, that were killed to the ground in 1860, are only slightly browned. Roses, of which there is a nice little collection, are all unhurt. Jasminum nudiflorum was splendid on the walls before the frost: all the late blooms which were not expanded are now out beautifully and look very gay and cheerful. I find the Golden Variegated Vinca is a good deal cut up. Tritomas have also suffered much. I have not found a single bud on any of the fruit trees out-doors in the least injured by the frost. In 1860, not only were the buds injured, but whole branches, and in some places whole trees, were killed by

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the severe cold. Strawberry plants are looking well. Vegetables here have suffered very little. Parsley on rich land, where it got a large growth, has suffered a little, but on poor land, when sown in May, it is untouched. Lettuces have stood well. Cabbages have stood well—a large piece of Enfield Market, Early Barnes, and Shilling's Queen look as green and well as they did in November last. Wheeler's Imperial, which, by the way, is one of the best sorts in cultivation, and Nonpareil planted out ten days earlier than the other, have suffered very slightly. Borecole and Brussels Sprouts look as well as they did in October. Of all Winter Greens there is none to equal Brussels Sprouts; but to have them fine they should be sown in March and planted out in good rich land as early in June as possible. Broccoli I have always laid facing the north in the autumn, and the principal part of mine have been so treated this last autumn. These plants are very little injured, and will be extremely useful by-and-by; but a few left standing have suffered very severely. This simple plan of laying them down will always save the great bulk of the plants in ordinary seasons, but to leave them standing is to run a great risk; for though they may and do escape in very mild winters, they will not stand a severe one untouched.

And here I would beg respectfully to ask those interested in the matter the question, Of what use are the so-called Winter Broccolis? The only use I ever found of them was—and in this way they are very valuable—that when sown late they sometimes come in before the other sorts in spring. But the name of Winter Broccoli leads the inexperienced to think they can have an abundance of this valuable vegetable during the winter months of January and February. If they lived along the south coast, either of England or Ireland, they might in most seasons have them; but if they live inland, and north of London, unless in very exceptional seasons the thing is impossible. The true Walcheren is very superior to all autumn or winter Broccolis; and as this can be had all the autumn months, and sometimes by proper storing can be kept—in-doors, of course—all through January, I prefer it to all other kinds. A sowing made from the 15th to the 25th of May will furnish plants for putting out during July. I make four large plantings of it in July, at intervals of seven days, and in good land, and different situations. These furnish an abundant supply during the whole of the autumn, up to the end of December.

Stourton. M. Saul.

DESSERT ORANGE CULTURE.*

In the diary of that "fine old English gentleman," John Evelyn, may be found an intimation to the effect that he had eaten as good "China Oranges" plucked from his own trees as he ever wished to eat. In those days dessert Oranges were, it seems, called "China Oranges." Although Oranges were cultivated in France long before Evelyn's time, yet they were considered merely ornamental appendages to palaces and mansions: no thought seems to have been turned to them, so as to consider them fruit trees; and even Evelyn, with his remarkable horticultural sagacity, does not mention that he had ranked Orange trees among fruit trees, for in his "Kalendarium Hortense," when he mentions for every month "fruits in prime and yet lasting," no mention is made of Oranges. It would seem, therefore, that

* From the *Report of Proceedings of the International Horticultural Exhibition and Botanical Congress of London*, 1866—a very interesting record of that great Horticultural gathering, just issued.

his gathering of Oranges fit to eat was an accidental occurrence; and we are led to suppose from the silence of gardeners for nearly two hundred years as to their culture, that the Orange-eating world has felt perfectly satisfied with imported Oranges, brought quickly by fast-sailing vessels. Still, the difference between Oranges freshly gathered from the trees, and the very finest imported, is most remarkable; there is a crispness and fine aroma in Oranges freshly gathered difficult to realise, unless they are promptly compared with imported fruit; they are indeed a luxury, and, as such, will be cultivated ere long in every good garden.

The houses best adapted for their cultivation are the large span-roofed, 24 feet wide, 6 feet high at each side, and 15 feet high in the centre. A house of this size will require eight four-inch hot-water pipes, four on each side, as artificial heat is required all the year to ripen Oranges in one season perfectly.

A smaller span-roofed house, 5½ feet high at each side, and 12 feet high in the centre, heated by four four-inch hot-water pipes, two on each side, is almost as eligible for Orange-culture as one even of the larger size. A house of these dimensions, with a central path, and a border on each side planted with Orange trees, would form a pleasant and productive Orange garden; but to form an Orange grove, so as to have trees of fine growth, and to give abundant crops, the larger house must be resorted to.

From the experience I have gained, I firmly believe that no conservatory, no Orchid-house, no greenhouse, is half so beautiful or interesting as an Orange-house constructed on the principles I now advocate, and provided with fixed roofs, rafters 24 inches apart, glazed with large pieces of glass, and admitting abundance of light; so that in December, when the trees are covered with their golden fruit, and many of them showing their snowy-white, perfumed flowers, the scene is indeed enchanting, and is enhanced by the agreeable temperature, which need not be higher than from 50° to 60° Fahr. (10° to 15° Cent.) in cloudy weather. It is not fierce heat in winter that ripening Oranges require, but an even agreeable temperature, such as is experienced in the Azores during that season of the year.

The houses above-mentioned should have side ventilation, as in orchard-houses—viz., an opening in each side of the large house 2 feet wide, for the smaller houses 1 foot wide; these openings should be in the centre of each side, and shutters of wood or sashes employed to close them, the latter, of course, being the most agreeable.

In houses thus treated, Orange trees may be cultivated in pots or tubs, or planted in the borders. There is no doubt that more rapid growth would take place if such borders were heated by having hot-water pipes placed 2 feet under the surface; but from recent experience I am inclined to think this is not absolutely necessary, for if the borders are raised 18 inches above the surface, they would have sufficient heat from the atmosphere of the house, and their temperature would be quite equal to sustain the trees in health.

The cultivation of dessert Orange trees in pots or tubs is very simple. The compost they require consists of equal parts of peat, loam, and manure thoroughly decomposed; the two former should not be sifted, but chopped up with the pieces of turf and roots, so as to form a rough compost. The trees will grow in this freely, and bear abundantly; but they should have gentle, constant, root heat; this is best given by enclosing hot-water pipes in a shallow chamber of bricks, and placing the pots on a flooring of slates or tiles forming the roof of the chamber.

The compost for the borders in which Orange trees are to be planted should consist of turfy loam two parts, and equal parts of thoroughly decomposed manure and leaf mould. After planting, the borders should be trodden down firmly, as Orange trees seem to flourish best in firm loamy soils. In the Orange gardens of Nervi, where Orange trees are, or used to be, so largely grown for exportation, and imported by the London dealers in oil, &c., the soil is a tenacious yellow loam.

The best form of tree for an Orange garden under glass is the round-headed, a form which it seems to take naturally; for if it is endeavoured to be cultivated as a pyramid, which would seem desirable, its lower branches soon become weakly and unhealthy. If trees with stems 2 or 3 feet in height are planted, the lower branches may be gradually removed till a clear stem of 5 feet in height is formed, and this height will be found sufficient. They may be planted from 5 to 6 or 7 feet apart, according to the size of the house and the room which can be afforded for each tree. It must not be forgotten that in small houses the heads of the trees may be kept in a compact state by summer pinching, and in large houses be allowed a greater freedom of growth, so that the owner of an Orange garden in England may sit under the shade of his Orange trees.

There are but few kinds yet known of really fine dessert Oranges; the amateur who wishes to plant an Orange garden to supply his dessert, must not think of planting the numerous varieties of the genus *Citrus* grown by Italian and French cultivators; they are mostly what are called fancy sorts, and are more prized for their foliage and flowers than for their fruit.

One of the most charming and prolific of dessert Oranges is the Tangierine: the tree has small leaves, and seldom attains a height of more than 7 feet, even in North Africa. Its most valuable quality is its early ripening, so that in October, just as the late Peaches and other soft fruits are over, this luscious little fruit is ready for the dessert; and when freshly gathered no fruit can be more gratifying or delightful, as its aroma is so delicious, and its juice so abundant, in this respect offering a pleasing contrast to those imported from Lisbon in November and December, the flesh of which is generally shrunk from the rind, instead of being ready to burst, as is the case with those plucked from the tree. They should, in common with all home-grown Oranges, be placed on the table with some leaves adhering to their stalks, thus showing that they have not made a voyage.

Among full-sized Oranges the Maltese Blood takes the first rank. When quite fresh from the tree it differs much from those imported, although the voyage as now made by steamers is of short duration. I was not so fully aware of this till early in January, 1866, when I was able to compare some fine imported fruit with some gathered from my trees. I found the former, although rich and juicy, yet flat in flavour compared with those freshly gathered; they lacked the crispness and aroma which were most agreeable in the latter. The great advantage in planting this sort is its tendency to bear fine fruit while the trees are young; they are indeed so prolific, that trees of only 2 feet in height have here borne nice crops of fruit.

Some varieties, quite equal to the foregoing in quality, but without the red flesh so peculiar to these "Blood Oranges," have been imported from the Azores, the paradise of Orange trees. One of the most desirable sorts is called simply the St. Michael's Orange. This kind has a thin rind, is very juicy, and bears abundantly, even while the trees are young. In the Orange-house these will ripen towards the end of December, and throughout January and February, in common with the Maltese Blood Oranges.

No one but an amateur of gardening can imagine the pure, quiet pleasure of taking a morning walk in the Orange-house during the above-mentioned dreary months, and plucking from the trees Oranges fully ripe. I have had much experience in the culture, and, I may add, in the eating of fruit; but I can say with a firm conviction that I have never enjoyed any kind of fruit so much as I have Oranges of my own plucking in winter.

In addition to the three leading varieties I have mentioned, there are several kinds which will, doubtless, prove interesting and valuable. It is not to be expected that so much variation in flavour, as in the Pear, for instance, can be met with in Oranges. I believe, however, that when our Orange palates are educated we shall find many delicate distinctions in the flavour of Oranges. As far as I have gone I have found the Mandarin Orange larger and more flat in shape than the Tangierine, and not so good as that sort. The Embiguo, the Egg, the Silver Orange, the Botelha, the White Orange, and some others, all varieties from the Azores, are of various degrees of excellence, and are all worthy of a place in an English Orange garden.

There are many various forms of the genus *Citrus*, which, in a large Orange garden, may be cultivated, and prove of interest to the cultivator, but I have thought it proper to confine myself, in conformity with the heading of this paper, to the kinds of Oranges proper for our desserts. It may, however, be not thought out of place if I mention that the Lemon, more particularly the Imperial Lemon, is well worthy of a place in the Orange garden, as is also the Small Lime, which is a concentration of acidity.

In these few remarks, I hope to be excused any lack of full and proper directions to carry out my conceptions. It is at all times difficult to tell people how to cultivate even a Cabbage; for unless full directions are given as to which end should go into the ground, it is just possible that a tyro in gardening would plant it head downwards. So it is in the higher branches of horticulture: it is only an outline that can be given in print, the picture must be filled in by observation and study. Ten minutes showing will do more than ten hours reading; still, without the preparation of reading, the mind will not take in what is shown.

Sawbridgeworth. THOMAS RIVERS.

FUCHSIAS FOR EXHIBITION.

FEW of our florists' flowers have undergone greater or more improving change at the hands of the breeder than the Fuchsia, as must be apparent to any one who will compare the original *Fuchsia coccinea*, *gracilis*, or *virgata*, with such modern sorts as Enoch Arden, Father Ignatius, Minnie Banks, and Vainqueur de Puebla which have sprung from them. Not only has the form been changed, but also the colour. The first decided break was the production of the variety with white tube and sepals, known as Venus Victrix; this was raised by Mr. Gulliver, gardener to the Rev. S. Marriott, of Hormonden, Kent, and was sent out in 1842 by Mr. Cripps, of Tunbridge Wells. The next important move which was made is due to the successful experiments of the late W. H. Storey, Esq., of Exeter, who shortly before his death succeeded in raising the first of the varieties with a white corolla; this, which was called Queen Victoria, and was let out by Messrs. E. G. Henderson & Son, of St. John's Wood, in 1855, was figured in the *Florist* for that year. All this time the Fuchsia in its old-fashioned colours had gone on improving both in size and form, in the hands of various

raisers, until at length the mantle fell on the shoulders of E. Banks, Esq., of Deal, to whom we are principally indebted for the very marked advance which has taken place within the last few years. Finally, the double varieties have not been lost sight of in the general improvement, for Mr. Cannell, who is one of the best Fuchsia growers of the metropolis, and a leading authority on the subject, in alluding to some which are to be introduced this season, describes them as being of extraordinary dimensions, with the corollas more like small Roses than Fuchsias. In one of these, called Monster, the corolla is said to measure from 2 to 2½ inches across.

I shall now add the names of twenty-four of the best exhibition Fuchsias, relying partly on my own judgment and observation, and partly on the recommendations of the best growers :—

Single Scarlet Fuchsias with Dark Purple Corolla.

1. *Enoch Arden.*—A bold and effective as well as free-blooming variety. The sepals are recurved, and the corolla cup-shaped, the latter of a rich indigo blue passing into violet red. This has proportionately the largest corolla, and the stoutest substance of any variety yet raised.

2. *Harry George Henderson.*—This remarkably effective variety has broad well-reflexed bright coral scarlet sepals, and a very large rich plum-violet corolla of great substance. It is certainly one of the finest Fuchsias ever seen, having, moreover, a good habit, and being a strong grower.

3. *Light Heart.*—A very good and distinct sort, the best in habit of all the very dark kinds. It has broad reflexed sepals, and a black purple corolla, changing to a violet plum-colour when fully expanded. The foliage is of medium size, and the habit short-jointed.

4. *Lizzie Hexam.*—Certainly one of the finest Fuchsias ever sent out; it is a beautiful telling dark variety, the tube and sepals being of a brilliant scarlet properly reflexed, and the corolla large and of a rich dark purple. It is, moreover, a good grower, of fine habit.

Single Scarlet Fuchsias with Rose or Lavender-coloured Corolla.

5. *Beauty.*—A beautiful exhibition variety, with broad bright carmine-scarlet sepals gracefully recurved, and a pure lavender-coloured cup-shaped corolla of a model outline. The growth is free and vigorous, and adapted either for pyramid or bush specimens.

6. *Consolation.*—A very free-blooming kind, of good habit, and one of the best for any purpose. The sepals are light carmine, and the corolla bluish lavender, changing to plum colour when fully open.

7. *Father Ignatius.*—The very free-blooming habit and fine form of this variety render it one of the finest of all for exhibition purposes; indeed, the corolla has the finest outline of any Fuchsia extant. The habit is bushy and short-jointed, the foliage small, and the corolla beautifully cup-shaped, of an indigo blue, striped sometimes with rose, and that chiefly on the first batch of flowers.

8. *Roderick Dhu.*—A free-blooming variety, of excellent habit; the sepals well recurved, and the corolla of a lavender blue, very large, opening out à-la-crinoline. The flowers being large, and of a fine colour, and the habit being neat and bushy, it is one of the most effective varieties in cultivation.

Double Scarlet Fuchsias with Dark Purple or Blue Corolla.

9. *Agamemnon.*—A fine-habited sort, and the freest bloomer of all the doubles; it is a very showy variety.

10. *Grand Duke.*—This variety is a great improvement on Universal; it has smaller leaves than in that sort, and has also the largest and closest corolla of any Fuchsia known; it is, moreover, of free-flowering habit.

11. *King of the Doubles.*—This new sort is described by Mr. Cannell as a grand plant for exhibition, the habit being remarkably good. It has a dark scarlet tube and sepals, the latter broad and beautifully reflexed, and the corolla is very large and long, of a rich purple, distinctly striped with red.

12. *Rifleman.*—An excellent sort similar in character to Sir C. Campbell, but far superior in every way.

Single Scarlet Fuchsias with White Corolla.

13. *Conspicua.*—This is a first-class show kind and the best for exhibition. It is a good bloomer; the habit, moreover, is very much improved when the plant is two or three years old.

14. *Mrs. Gladstone.*—The free-blooming habit, fine large bold flowers, and perfect shape of this variety, place it in advance of all others in its class. The tube and sepals are bright waxy scarlet, the latter very broad and reflexed, equal to the well-known Guiding Star, while the corolla is bell-shaped, pure white, with a beautiful scarlet feather.

15. *Puritani.*—This has the best habit of any of the kinds with white corollas, and is one of the best for small pots, or for the decoration of the dinner-table.

Double Scarlet Fuchsias with White Corolla.

16. *Emperor of Fuchsias.*—This is a fine large flower, and although the habit is bad when the plant is young, yet when two or three years old it very much improves, and then becomes a fine object for the conservatory.

17. *Eva.*—A very attractive kind, of good habit; it has well-reflexed sepals and a bright waxy scarlet tube.

18. *Vainqueur de Puebla.*—This is the best of the varieties with a double white corolla, far superior to Madame Cornelissen. It has fine glossy-green foliage, boldly reflexed sepals, and a very large full corolla. It is also a fine acquisition for the open garden.

Single White Fuchsias with Scarlet or Pink Corolla.

19. *Catherine Parr.*—A model variety, excellent in habit, and a free bloomer; indeed one of the best of its class. It has a white tube and sepals, the latter well reflexed and of great substance, and a cup-shaped corolla of a rich scarlet-tinted rose. It is considered a great improvement on Reine Blanche.

20. *Lucy Mills.*—A good light variety, after the style of Marginata both in habit and bloom, but the flowers are larger and brighter in colour than in that variety. The corolla is of a light pink edged with bright rose.

21. *Minnie Banks.*—One of the best light-coloured varieties, and also one of the best for exhibition. It has a splendid corolla, and is quite distinct from any other sort. The sepals are broad and recurved, and the corolla cup-shaped, of a clear rich rose.

22. *Rose of Denmark.*—This variety should be in every collection, whether for exhibition or decoration. The habit is rather strong, but it blooms very freely at the points, and is quite distinct from the other light varieties. The tube is glossy white, the sepals ivory white, horizontally recurved, the corolla cup-shaped, bright pink margined with rose.

Single White Fuchsias with Purple Corolla.

23. *Lady Heytesbury.*—A first-class new Fuchsia, decidedly one of the

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best for decoration, both the foliage and flowers being good, and the habit fine. The corolla is rosy purple.

24. *Prince Alfred.*—This also is a splendid Fuchsia, a most profuse bloomer, and a strong grower, so that it requires to be well stopped when in a young state.

C. B.

A FEW REMARKS ON PRUNING CONIFERS.

There are many persons who think that Conifers ought not to be pruned at all; and when planted for timber, when length and size of bole are the chief objects to be obtained, they are quite right in this opinion; but when planted for ornament, especially in pleasure grounds, where they are so immediately and constantly under the eye, then a certain amount of pruning is indispensably necessary, as trees of beautiful form and development are then the principal desiderata.

By way of appendix to my remarks on Conifers in the January and February Numbers of the Florist and Pomologist, I will now offer a few observations on this subject. From a successful operation performed on a Cedar of Lebanon something more than eighteen years ago, I have been led to pay great attention to this matter. This Cedar was a poor, miserable, stunted specimen, which few persons would have hesitated to stub up at once; but I determined to give it a chance. I pruned the branches well, thinning them out considerably, and did not merely confine the thinning to the main branches, but also thinned out well the small spray on the branches. The tree had no lead, neither had it had one for some few years previous. It had abundance of roots, so that I had little doubt that the pruning I gave it would force the whole of the nourishing fluid into the smaller number of buds left, and that one would soon form a leading shoot, or that I could easily select one shoot for a lead. The result exceeded my expectations, it soon pushed forth a good leader; and the tree has since continued to flourish with renewed energy, and is now a handsome specimen.

In general, Conifers, when properly attended to from a young state, require very little knife-pruning, the forefinger and thumb will in most cases do all that is necessary, but unfortunately they are not always properly attended to in the nurseries, and hence, when they come into the hands of planters, recourse is had to the knife to put them into form, especially to shorten loose straggling branches, which give the tree greater bulk without adding to the beauty of their form. The Cedar of Lebanon requires a good deal of attention, as the young shoots in seasons like the last grow late, and, being unripened, are apt to get killed by the severe frosts of winter, as has been the case this season. The young growth in spring oftentimes suffers also from late frost. Should the leader get killed, by a little timely attention another may be soon established. The Atlas Cedar is every way hardier than the Cedar of Lebanon, and requires little more pruning than merely pinching the ends off any straggling shoots, so as to keep the plants in nice form. The Deodar requires a good deal of attention, when in a young state, to get into a handsome form. The first specimen of it that I planted here seventeen years ago was very bushy and strong, but had no proper lead. It was left to grow untouched for three or four years, until it got well established, and then I pruned it well in, retaining the best shoot for a leader. The principal supply of nutriment being directed into this

shoot, it made a fine growth the following season; and the tree continued to improve every year after, and was a nice young specimen in 1860, when unfortunately it was one of the few that suffered most from the December frost, and was in consequence cut down.

The Pines require little or no pruning. When a specimen loses its lead, some attention is necessary to secure a fresh one without spoiling the form of the tree. All loose rambling branches should be kept within bounds by timely stopping.

The Spruce Firs also require little or no pruning, save stopping straggling shoots, and attending to the leads. The Hemlock Spruce, however, requires considerable attention in pruning to secure handsome specimens.

Some of the Silver Firs require a good deal of pruning, especially Picea cephalonica and Pinsapo. The young growth of P. cephalonica, like that of P. Webbiana and some others, owing to its early budding forth in spring, is sometimes killed by the late frosts; and the plants in consequence have a stunted appearance. One of our best specimens here had all its young growth killed by a late frost ten years ago, except the leading bud, which escaped uninjured. That same season, all the energies of the plant being thrown into this single bud, it made a wonderful shoot; and the tree has ever since continued to flourish in a remarkable degree, not a single bud having been the least injured since. Since that time I have freely used the knife on other plants of this kind. P. Pinsapo does not bud so early in spring as P. cephalonica. The young growth is seldom or never injured by late spring frosts; but the trees, nevertheless, often grow very stunted and bushy, especially when young, and when left untouched or unpruned they often remain so for many years. There are several promising young specimens here, all now growing away freely; but when we got them, they were bushy, stunted plants, and for some years after they made little progress upwards, the growth of the leading shoots rarely exceeding a few inches in length, and in many cases not more than 1 or 2 inches. By a liberal use of the knife in well thinning the branches, and directing the energies of the plants into the leading shoots, I have now got the greater part of them into a free-growing state. This, of all Conifers, requires the most liberal use of the knife, for unless the branches are kept well thinned out, the leading growth is poor, and the plants get a stunted bushy growth.

There are many kinds of Conifers that require little or no pruning with the knife. When properly attended to from a young state, stopping and pinching will effect all that is required.

I would advise all who have charge of extensive and valuable collections of Conifers to examine every specimen as often as they can find time to do so; they will then see any little matter that needs attending to, such as the loss of leading bud or shoot from accident or otherwise, a loss which by timely attention is soon repaired without any detriment to the specimen, but which if overlooked for some time may not be so easily rectified.

Stourton. M. Saul.

ON THE CULTIVATION OF THE STOCK.

The seed of the finest strains of Stocks is always scarce, and, therefore dear. When the double-flowered plants form something like from 70 to 80 per cent. of the plants, there can be but few single flowers from which seed can be obtained; and when it is remembered that in order to fully develope and ripen the seeds, it is often found necessary to pinch off one-

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half of the spike of seed-pods, it is evident that even this already-limited area is considerably lessened. Seeds of what are generally denominated summer-flowering Stocks should be sown about the middle of March, in a cold frame in a well-prepared bed raised up near to the glass. The seeds should be sown very thinly, as they are liable to be attacked by mildew; and the thicker the plants are, the greater will be the number destroyed. When the plants are sprinkled overhead, air should be given to dry the foliage, or mildew will ensue. On the part of the amateur gardener close attention must be given to this point, or the whole crop of plants may suffer considerably. A bed composed of manure and leaves that will yield a gentle warmth can also be employed to raise the young plants. It should be in a sheltered position, and a covering can be made of green rods bent in the form of a bow and roofed with garden mats. A bed of this character must be kept close, should frost or cold winds prevail.

The ground in which it is intended to flower the plants should be well trenched in the winter, so as to have the full and beneficial action of the frost. During showery weather the work of transplantation should be performed, and if the subsequent weather should prove dry, frequent sprinklings through a rose watering-pot should be administered. With a rich soil and moisture at the roots combined, there cannot fail to be a rich harvest of flowers. The exhibitor of the Stock will, as the show approaches, be fully alive to the value of occasional waterings with liquid manure, as well as careful shading of the flowers.

The seed of the biennial, or winter kinds of Stocks, such as the Brompton, Emperor, Cape, and Queen, should be sown in June, in order that the plants may be strong to withstand the rigour of the winter. Damp appears to be as hostile to the winter Stocks as the summer ones. High and dry situations, under the shelter of a south or west wall, are good positions in which to winter the plants successfully. The grower should be careful when transplanting not to reduce the ball of earth about the roots, so that there be no check given to the growth of the plant.

Quo.

CHRYSANTHEMUMS AND ZONAL PELARGONIUMS.

Having for a considerable number of years borne allegiance to Autumn's Queen, the Chrysanthemum, I feel it my duty to do battle for her when she is attacked; and this she lately has been by Mr. Cramb. Before she is deposed and banished to the kitchen garden, I trust we shall have some explanation of Mr. Cramb's first assertion, that the Chrysanthemum's reign of supremacy is drawing to a close. I have no doubt his statement is correct so far as Tortworth Court is concerned—that it is generally so I deny; but this is not a point of much importance, for the mere fact of popularity is not always a proof that a thing is good in itself.

Mr. Cramb's second assertion is that Chrysanthemums cannot supply the desideratum of the winter season—namely, an array of warm colours, being too far removed from the primary colours. Surely he would have some appreciation of the beauty of Crimson Velvet, Julie Lagravère, Madame Poggi, Gloria Mundi, Yellow Perfection, and Jardin des Plantes, which certainly come sufficiently near to two out of three of the primary colours to satisfy the most fastidious. I must admit the deficiency of the Chrysanthemum in regard to the only other primary colour—blue, but in this respect it is certainly not inferior to the Zonal Pelargonium, which exhibits

only one of the primary colours—namely, red. Why, therefore, it should supersede the Chrysanthemum when primary colours are required I am at a loss to imagine, especially when, in addition to the above-named varieties, we have such gems as Rifleman, Sparkler, Queen of England, Prince of Wales, Princess Marie, Prince Alfred, Novelty, Hermione, Her Majesty, White Globe, Garibaldi, Abbé Passaglia, Beverley, Alfred Salter, General Slade, Dupont de l'Eure, Lord Clyde, Pio Nono, and Nonpariel. These, by judicious arrangement, may be made to afford a varied, brilliant, and harmonious display from the early part of October till some time in January.

I do not wish to be understood as objecting to the cultivation of Zonal Pelargoniums for winter decoration, as I use them myself on a small scale with much advantage; but to let them displace the Chrysanthemum entirely would, in my opinion, be unwise, for besides not affording so brilliant a display in winter, the different varieties of Pelargonium figure conspicuously for such a length of time during the summer and autumn, that to cultivate them exclusively for winter decoration would be producing that excessive domination which Mr. Cramb so much objects to, and I suppose he does not wish to exclude Pelargoniums from our list of plants for summer and autumn display. I trust, therefore, he will give the Chrysanthemum another trial. To enable him to do this I shall be happy to give him a few cuttings that I can confidently recommend; and he will find my simple method of culture in the Florist and Pomologist for December, 1865.

In conclusion, I will add one more Pelargonium to Mr. Cramb's list of those suitable for winter work—namely, Excellent (Smith), which is admirably adapted for the purpose, as plants of it that I struck early in August were in full bloom in December.

Crabwood, near Southampton. J. C. Higgs.

HOW TO GROW THE TUBEROSE.

The fragrant Tuberose, the *Polianthes tuberosa* of botanists, of which both single and double varieties occur, was originally introduced from India. It is very generally called the "Italian Tuberose," simply from the fact that we are indebted to Italy for large supplies of most excellent tubers, which are annually imported from thence. The Italians propagate the Tuberose in large quantities, and, aided by their beautiful and salubrious climate, they are enabled to grow the tubers to a well-developed state, far beyond that attainable in our own variable climate, even with the utmost attention. Indeed, could better success be ensured here, it would scarcely repay the necessary time and trouble, so low is the rate at which they are retailed—namely, from 3*s*. to 4*s*. per dozen.

No other plant possesses a fragrance more grateful to the senses than that of the Tuberose; and as the crudest loam alone, added to treatment the most simple, is required in order to grow and flower them perfectly, I consider them worthy of a far greater amount of attention than they receive, for they are alike suited to gratify the amateur of the humblest means, and to diffuse a grateful fragrance throughout the most costly drawing-room.

The tubers should be procured as soon as possible after their importation, which has generally taken by the month of March. They are to be placed at once for a week or two in a rather close warm place, and if it be moderately moist so much the better. This, besides advancing them a stage in their efforts to emit fresh roots, will also be useful in showing

whether any bruises, which might have been received in the course of importation, are so serious as to induce decay when they are brought in contact with moisture. If any such cases are perceived, all the damaged parts should be removed by cutting them away with a knife, placing the tuber so injured in a drier atmosphere for a few hours, in order to assist the wound in healing over. After this, they may all be potted with greater safety than previously. For this purpose procure some stiff clayey yellow loam, to which add a little silver sand. Use five-inch pots (48's), placing one good crock over the drainage-hole, and upon this a thin layer of old well-rotted cowdung. Put one tuber only in each pot, having first filled the pot as firmly as possibly with the soil above named, and formed a cavity in the centre, to hold some silver sand, in which the tuber is to be set, burying it to half its depth, and finishing off by ramming the whole together as firmly as possible with the hands.

When they are all potted place them in any warm situation, the moister the atmosphere the better. The position which I have found best for them, is in a single row close up to the woodwork at the back of a Cucumber or Melon-bed formed exclusively of fermenting materials. Here, fully exposed to the sun, and with a high maximum temperature, they root readily and grow freely. In such a position, do not give any water whatever until they have freely started, and then apply it very sparingly for a time. Should it be necessary to place them in a drier position over pipes or a flue, and where, the atmosphere and surroundings being drier, they may be likely to become unnaturally dry before the process of vegetating takes place, they should be slightly moistened by dipping the whole of the exterior surface of the pot in water for a few seconds occasionally.

When they are once fairly started they must be watered copiously for a few weeks, moistening the leaves well each time. Continue this treatment until the leaves are 12 or 14 inches in length, when, if any do not show signs of throwing up a flower-spike, withhold water wholly all at once, letting the ball become quite dry, but moistening the leaves occasionally to ward off red spider. The moment flower-spikes are observable copious waterings should again be resorted to; and if, at alternate root-waterings, diluted manure water is used, it will be all the better for them. Keep them as near the glass as possible, with abundance of air, until the first flower-bud is to be seen, when it may not be disadvantageous to draw them out in length. They keep longer in bloom if placed in a cool greenhouse whilst opening their flowers; these will expand in any ordinary sitting-room, and keep well in water either cut or otherwise.

Digswell. WILLIAM EARLEY.

ON THE USE OF BASKET PLANTS.

WHAT a happy idea it was to grow plants in baskets! What a charming change from the stiffness and everlasting monotony of pots! What a relief to look up to slender and delicate beauty instead of having to stoop lower and yet lower down to fondle and admire it! And then how the plants must exult in their freedom from *stakes!* How elegantly they arrange themselves in the wantonness of their new-found liberty! What lines of graceful beauty they describe for us! They have stooped to conquer, fallen to rise, "humbled themselves that they might be exalted;" thus inculcating one of the highest moral lessons—that in the long run humble worth will have its reward. As often happens, however, the reward, in the case of

drooping plants, came with tardy feet. Man is slow to learn that Nature is not only our wisest teacher in such matters but our greatest artist. He is so proud of his little brief authority over Nature, that he tries to govern her as an absolute sovereign; but he learns sooner or later that it wo'n't answer. If we are to govern Nature at all, our government must be *constitutional*. Nature's voice must be heard, and her wishes obeyed.

It seems strange that gardeners have hardly yet learned this lesson. While the painter has been endeavouring for centuries to dip his brushes into the brilliant colours of Nature, we have been slow to learn the laws of form and shape from her infinitely varied and inimitably perfect lines of beauty. It only seems yesterday when the rule of red tape carried all before it in these matters. The law was to tie every plant, whatever its habit, up to a straight stick. The most conspicuous difference among plants consisted in the length and consequent thickness of their poles. The art of arrangement was measured solely by a knowledge of feet and inches. Tallest to the back, 6 inches shorter next row, 6 inches less next, and so on, until a line of dwarfs was marshalled in front, and stood like a regiment of living mummies. They were marched out and reviewed, passed through the various evolutions of pot-scrubbing, surface-scraping, top-dressing, fresh propping or tieing, or perhaps shifting, and then carefully marched back again. With green slime removed, worms caught, and new dispositions in reference to *height* made, the cultivator felt his half-yearly work done, and surveyed them with more pedantic pride than is felt by the modern exhibitor as he walks from Kensington or the Regent's Park with half a dozen first prizes in his pocket. If an individual plant dared to manifest self-willed individuality during these long intervals, a speedy remedy was ever at hand to secure uniformity. It was brought down to the dead level of law with the thrust of a sharp knife, or bent and kept down with a choking tie.

Well, thanks to various influences, *good* garden literature perhaps more than all others, we have had a glorious revolution since those days. I think it would scarcely be possible to find one such regiment of skeleton plants in Britain now. Nature has so far defied red tape that she dares to be free! Our training must now be for, not against her. If we ever ruin or distort her charms now the injury is not intentional. I do not say that all our staking is wise or beneficial, but it is meant to be so. It is easier, however, to condemn stakes than to find a substitute for them, or to get plants in houses to support themselves with their heavy burdens of flowers without them. Were all our plant-houses flooded with light as they ought to be, and will be in the future, and plants could remain at rest where they have grown, the most of our stakes might be dispensed with. But travellers must have something to lean against. The pedestrian had his stout cudgel, and the modern traveller the hard seat of a third-class or the luxuriant cushion of a first-class carriage. And plants on their travels must have such as these, or equivalents for them.

But what a relief to get away from stakes or trellises to basket culture, which dispenses with them all! The plants are *dependent* indeed, though not on artificial props, but on the all-embracing air. They droop down beauty, it *falls* from them in showers; they *weep* it is true, but it only heightens their charms, and the tears they shed are sunshiny ones of joy.

We have a large choice of plants for this purpose. The whole race of climbing plants that will bloom in small compass, fine-foliaged climbing plants such as Cissus, &c., Fuchsias, Saxifrages, Sedums, Tradescantias,

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Vincas, Lobelias, Campanulas, Verbenas, Convolvuluses, &c. Then there are Orchids, Cactuses, Ferns, Gloxinias, Lycopodiums, and Ivy-leaved and many other Pelargoniums. Each of these has its admirers, and all of them, and many others, may be had exceedingly beautiful in baskets. But for gracefulness of habit, continuity of bloom, facility of cultivation, and certainty of result, commend me to the family of Achimenes. Next month I will treat of its management, and of the varieties best adapted for this purpose.

Hardwicke House, Bury St. Edmunds. D. T. Fish.

NOVELTIES, &c., AT FLOWER SHOWS.

The meeting of the Floral Committee on the 19th ult. produced a rare and beautiful show of *Orchids*, a good few being varieties produced for the first time. Messrs. Low & Co., of Clapton, received a first-class certificate for an *Oncidium* closely allied to O. pelicanum; the segments of the flowers were rounder and smoother on the edges, and it was without the slight brownish lines traced on those of O. pelicanum. The same exhibitors received a second-class certificate for an *Oncidium* imported from New Grenada; it was in the way of O. sphacelatum, and was of a very showy character, the habit of the plant being also remarkably good. Messrs. Low and Co. also contributed a very interesting display of *Oncidiums*. Mr. Jas. Anderson, of Meadow Bank, Glasgow, sent up a spike of the small but very rare *Oncidium nubigenum*, a somewhat remarkable fact connected with which is, that it was discovered at a greater elevation than any other Orchid—some 14,000 feet above the level of the sea. A first-class certificate was awarded to Messrs. Low & Co. for a variety of the pale yellow *Odontoglossum maculatum*, named *superbum*, a fine and distinct variation, the segments being stout and well-shaped, the brownish tint being much darker than is usually observed in O. maculatum, and the border of the lip being toothed, with the marginal spots following the outline. Dr. Pattison, of St. John's Wood, had *Odontoglossum Warnerianum*, a small plant bearing a *prima facie* resemblance to *O. Cervantesii*. A variety of *Odontoglossum nebulosum* came from J. Day, Esq., of Tottenham; it was considered to have considerable merit, but was too far gone in blooming; it will probably be seen again under more favourable circumstances. W. W. Buller, Esq., of Exeter, exhibited a new Dendrobe, unfortunately in very bad condition, but of which Mr. Bateman entertained a high opinion, and recognised its distinctive merits by naming it *Dendrobium Bullerianum;* it bears a strong resemblance to D. Devonianum, but is without the fringed margin belonging to that species. A magnificent spike of *Lælia superbiens* was furnished by Mr. Anderson, of Meadow Bank, the flowers massive in build and richly coloured; and from the same came cut specimens of *Batemannia Beaumontii*, the representative of a genus named after Mr. Bateman by the late Dr. Lindley; also the leathery-flowered yellow *Vanda gigantea*, and the new lilac-flowered *Epidendrum Cooperianum*.

A second-class certificate was awarded to Messrs. E. G. Henderson and Son for the Brazilian *Griffinia Blumenavia*, a pretty Amaryllid, belonging to a shy-flowering family; it has foliage resembling a Vallota, and white flowers with a bar of rose-colour on each segment. Messrs. Veitch & Sons gained a similar award for *Asplenium difforme*, an evergreen bipinnate species from New Zealand and Norfolk Island, which will make a pretty basket Fern for

a cool greenhouse. The same award was made to Mr. Earley, gardener to F. Pryor, Esq., Digswell, Welwyn, for an Indian species of *Bryonia*, an evergreen hothouse creeper, with fringed white blossoms like those of Trichosanthes, and emitting an agreeable fragrance; flowering at the dull season of the year, it was found to be invaluable for bouquets. It is reported to produce berries, but the blossoms on this plant were all males.

A magnificent group of Amayllis (*Hippeastrum*), seedlings from aulica and vittata, was shown by Messrs. Garaway & Co., of Durdham Down, Bristol; and first-class certificates were awarded for—*Olivia*, rich scarlet and crimson-shaded, pure light throat; *Cleopatra*, bright orange scarlet, shaded and veined with glossy crimson, coloured to the base; *H. Gibbs*, carmine crimson, the spine of the segments pure white, and with a marginal feather of the same; and *Helena*, orange scarlet, with slight shading of crimson, dwarf habit, and of fine spreading form; while a second-class certificate was granted for *Juliet*, bright orange scarlet, shaded with purplish crimson, having a clear throat, but rather smaller than the rest; and a special certificate for six plants of *Ackermanni pulcherrima*, very richly coloured.

Mr. Sherratt, gardener to James Bateman, Esq., Biddulph Grange, Congleton, gained a special certificate for fruiting sprigs of the Kum-quat (*Citrus japonica*), which had been ripened in a warm greenhouse. It is said to be hardier than the common Orange. The plants form bushes of from 3 to 4 feet in height, and are loaded with fruit at this season of the year. Mr. Fortune thinks it may prove hardy in the south of England. Messrs. Veitch & Sons sent a handsome half-standard plant of *Aucuba japonica vera*, with a good quantity of its brilliant berries, and extremely well grown; also a fine group of *Lycaste Skinneri*, sent in mournful compliment to the late Mr. Skinner; the valuable winter-flowering cool-house *Cattleya Warscewiczii*, in beautiful and almost endless variety, came from Mr. Wilson, gardener to W. Marshall, Esq., Enfield; and a group of *Cyclamens* from Messrs. E. G. Henderson & Son comprised fine well-grown varieties of persicum, Atkinsii, and coum. The foregoing all gained special certificates.

Before the Fruit Committee came a hybrid *Brussels Sprout* of no merit from Mr. Ivery, of Dorking; and heads of selected *Fearnought Cabbage*, a hybrid between the Dwarf Scotch Cabbage and the Hearting Kale, remarkably hardy, very dwarf-growing, and deliciously tender when cooked, from Mr. R. Dean, of Ealing.

R. D.

OUR MONTHLY CHRONICLE.

OBITUARY.

Mr. G. Ure Skinner, F.L.S., was second son of the Very Rev. John Skinner, M.A. Dean of Dunkeld and Dunblane, and was born March 18th, 1804. In early youth he was bent on entering the navy, but, in deference to his father's wishes, became a clerk in the banking house of Barclay, Bevan, & Co., of London. Subsequently he embarked in the general business of a merchant in Leeds; and in 1831, on a prospect opening up of establishing a trade with the Republic of Guatemala, he at once set sail for that little-known country, destined to be the scene of the chief events and labours of his life. Here he entered into partnership with Mr. McKlee, for many years *chargé d'affaires* for Hanover and Prussia—and thus arose the well-known mercantile house of Klee, Skinner & Co., of Guatemala.

From a child Mr. Skinner was an ardent lover of nature, but it was not until he landed in the New World that it showed itself in all its strength. Guatemala was at that time an unwrought mine in natural history—its Fauna and Flora being alike unknown. Mr. Skinner took to shooting the birds, and catching the insects of his adopted country, and

afterwards to collecting and sending home plants, especially Orchids, in which Guatemala was especially rich. His first collection, though gathered at random, contained nothing but novelties, including the now well-known Barkeria Skinneri, Epidendrum aromaticum, and E. aurantiacum, Oncidium Cavendishianum and O. leucochilum, and Odontoglossum bictoniense, the first member of that now popular genus that ever reached England alive. Mr. Skinner was the first to find Odontoglossum grande, his own particular pet, O. Uro-Skinneri, O. rubescens, and O. pulchellum, with its small though lovely and deliciously scented white flowers. The Cow's-horn Orchis (Schomburgkia tibicinis), Epidendrum Stamfordianum, and E. alatum, were all detected in the Gulf of Dolce, while not far from the same coast the charming Cattleya Skinneri was discovered. The noble Lælia superbiens, and the stately Epidendrum cnemidophorum his latest discovery, were met with at much greater elevations, as was likewise the invaluable Lycaste Skinneri, which now enjoys, and, indeed, richly merits, an amount of popularity such as has not been accorded to any other Orchid. Though Orchids were his favourite plants, he did not neglect other tribes, as is attested by such names as Aquilegia Skinneri and Uro-Skinnera speciosa, given to some of his introductions. Mr. Skinner was past sixty years of age, and having worked hard all his life, began at length to desire repose; he therefore had resolved to retire from business, and to settle for the residue of his years in his native land. With this purpose in view he sailed on the 2nd December last for Guatemala, with the intention of winding up his affairs, and then returning to England in the autumn of the present year. Had he been permitted to carry out these plans, he would have crossed the Atlantic forty times: but this was not to be. At Aspinwall he caught the yellow fever, of which he died on Wednesday, the 9th of January.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSES.

Whilst the days were short it was recommended not to stimulate plants to make growth in the absence of sufficient light, but now the days are about as long from sunrise to sunset as they are in spring in the tropics, the temperature may be 65° to 70° at night, rising to 80° or 85° by sun heat. This will be suitable for stove plants and Orchids from the hotter tropical regions. Those from colder localities which do not exhibit signs of active growth may be allowed to rest in a lower temperature. Both stove plants and Orchids will require a supply of water in proportion to the vigour of their growth, and the temperature under which it is being made. Observe such kinds as are about to make fresh growth, and shift if necessary. After doing so, a slight shading will be required, and a close atmosphere, so that sufficient moisture may be maintained with little water till fresh roots are started; then as new leaves are produced, more air and water will be required. Plants in flower should be kept rather dry.

GREENHOUSE.

In clear weather the sun's rays are powerful in this month; but in such weather the nights are often frosty, so that we have two extremes to guard against. Shading from either is an advisable precaution. The day screen should be withdrawn early in the afternoon, as from the rays of a declining sun, say after 3 or 4 P.M., there is seldom danger of over-heating: therefore they may then be freely admitted and the house accordingly be shut up early. If it happen that the temperature gets too high for want of air, there is then danger in admitting it so as to lower the temperature many degrees. The right mode of proceeding in such a case is not to reduce in the least the excess of temperature by this means, but merely to prevent its rising higher, for solely on this principle air should be given. *Camellias* will now be in flower. Let them be regularly supplied with water to prevent their flowers from dropping, and when their blooming is over let the plants be placed in a cooler temperature shaded from hot sun. The same may be said of *Azaleas*. *Ericas* must be carefully supplied with water, especially if dry easterly winds become prevalent. *Cinerarias* in succession to those now in flower must be potted; beware of the attacks of green fly, to which these plants are so exceedingly liable. *Pelargoniums.*—The general stock of these are usually started into growth at this season, previously to which the condition of the roots and the soil in the pots should be examined, to ascertain that the latter has not become dry and almost impervious to water, and consequently so far useless. Let any plants that are in this condition be repotted.

CONSERVATORY.

Camellias will require to be attended to with regard to water at the roots, but carefully, so as to give no more than is sufficient. Withhold syringing when the weather is dull and moist, but supply water more liberally when the weather is clear, saving, of course, the expanded flowers; the foliage may be freely syringed. A succession of *Roses*, *Chinese Primulas*, *Hyacinths*, and other plants dis-

tinguished for floral beauty as well as fragrance should be kept up. The soil in pots should be kept fresh, and the pots themselves kept perfectly clean; then, if placed on silver sand, they present an agreeable contrast. Besides, the sand absorbs moisture, and in proportion to the dryness of the air gives it out beneficially.

PITS AND FRAMES.

Frequently look over the stock of *Bedding Plants*, to see that all are in a favourable state of growth, and shift immediately any that are not. Attend particularly to those that are required to be pushed on to make shoots for propagation, and for this purpose remove them to a warmer temperature; but at the same time, whilst encouraging growth, take care that it is sound and substantial, by giving it a due share of light and air. Let the stimulus of heat be applied so as it may be steadily progressive. Stop back to form bushy plants, and do this so as to reduce the amount of foliage as little as possible, for it is by means of foliage that roots and fresh growth are made. Attend well to watering, but avoid constant damp, and allow moisture to be once a-day, if possible, thoroughly chased away by sunshine and fresh air.

FORCING.

Vines.—Keep up a moist growing temperature. Continue to stop the shoots as previously directed, one joint beyond the fruit, and tie out the shoots into their proper positions as far as they will admit, for some would be in danger of breaking if strained to this all at once; such must, therefore, be inclined by degrees. Displace at the same time superfluous shoots—that is to say, those that have shown no fruit and are not required to bear leaves; for it should be always borne in mind that as many shoots should be permitted to grow as can have their leaves duly exposed to light, whether trained on the root or on the spur system. That mode of training is the best which admits the greatest extent of foliage being exposed in a given space. Vines bent down so as to induce the buds to break on the lower part of the shoots, should be taken up as soon as that object is attained. A higher temperature than was recommended last month may now be allowed—namely, 60° by night, and 70° by day. Muscats will bear 10° higher. *Pines* are during the present month generally shifted. In doing this observe, as a general rule, that in no case should they be placed in a colder medium than that from which they have been shifted. Within certain limits of temperature, with ordinary care, the Pine Apple is of easy culture. It does not like a high temperature by sun heat: not above 90° or 95°, nor one by night below 65°, and it prefers a bottom heat of about 80°. Plant out of pots now, young stock that has never felt the effects of temperature except within the above limits; plant on ridges in compost enriched with pig's dung, and give the requisite heat top and bottom, and you may not vainly expect fruit from 5 to 10 lbs. weight, according to the sort. Disbud *Peaches* and *Nectarines*, taking care to preserve a young shoot, which should be the lowest one pushed, on each shoot of last year's wood; train out the leaders without stopping where there is room for extension. *Melons.*—Bottom heat 80°, air of the frame 70°. Watch well the bottom heat; for if it should rise much higher than the above, the roots may be injured thereby. Pinch off the ends of the shoots when fairly started, in order that they may produce laterals, the strongest of which should be selected for bearing fruit. *Strawberries.*—Place the pots near the light; force very slowly at first, and till out of flower. Water regularly, otherwise the red spider will set to work; fumigate as soon as there is the least appearance of it. Clip off the top of the scape as soon as enough fruit is formed on the lower part.

KITCHEN GARDEN.

Sow the principal crop of *Borecole* for autumn and winter. Walcheren and other sorts of *Broccoli* may be sown towards the end of the month; and in case the ground should be in bad condition sow also in a cold frame. Plant out full crops of *Cabbages* which were sown in autumn; sow for summer and autumn supply the early Battersea, Vanack or Fulham, about the middle of the month; and in the beginning and end of the month portions of the Early York. Sow *Savoys* about the middle for autumn use; some of the Early Ulm may be sown in the beginning of the month. Sow the main crops of *Peas*; for the late kinds the ground should be well trenched, and manured with cowdung, and also to prevent mildew some of Knight's Dwarf Marrows should have a liberal supply of sulphur. *Beans* raised in heat for an early crop, should now be transplanted. Sow main crops in the beginning and end of the month. Transplant autumn-sown *Onions*; sow the main crop as early in the month as the weather and state of the ground will permit, in drills 6 inches apart. Sow *Leeks* for transplanting. Plant *Garlic* and *Shallots* in shallow drills a foot apart. Dress *Asparagus*-beds. Plant out *Lettuces* from frames, and sow on south border. Sow main crop of *Parsnips*. Plant main crop of *Potatos*. Make fresh plantations of *Asparagus*, *Horseradish*, *Rhubarb*, *Chamomile*, *Chives*, *Hyssop*, and *Liquorice*, if required.

FRUIT GARDEN.

The pruning of all kinds of Fruit trees should be finished without delay, stone fruits more especially. Whilst the ground is in condition—moist enough but not too wet, all planting should be done; for cold and very dry easterly winds often set in in this month and prove very trying for newly planted trees before young rootlets can be formed to re-

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place the waste caused by evaporation. *Grafting* should be commenced if the weather is not too frosty. Loamy clay, cowdung, and a sprinkling of fine short hay should be beaten and well incorporated. The fine hay serves like the hair in plaister, and prevents the clay from cracking and falling off; but the point on which the success of grafting mainly depends is, to join as much as possible of the inner bark of the scion to that of the stock; as this can be effected expeditiously and well, there is perhaps no better mode than the common one of whip grafting. It should be understood that the surfaces of wood never unite however nicely they may be applied to each other; it is between the inner bark and the wood where active vitality resides, and there only that a vital union takes place. Train and nail wall trees; drive the nails only in the mortar, not in the face of the brick, unless you wish to see the walls soon defaced that have been perhaps but recently built at great expense. The defacing, moreover, may be accelerated by forgetting that the nails get more or less oxidised, and of course become thicker and tighter every day, so that there is no occasion to strongly hammer them, as they wedge off more of the square of the brick and loosen a greater portion of mortar than is necessary. The blossoms of *Peaches*, *Nectarines*, &c., are in no danger till they begin to expand; but before this, means of protection should be got in readiness—coping-boards, thin canvas, netting, or any substance that will prevent the free escape of heat from the ground and surface of the wall. Thin straw screens could be made in weather unfavourable for out-door work.

FLOWER GARDEN.

Shrubs, it is presumed, will have now been pruned, and hedges trimmed. See that the latter are narrower at top than at bottom. In some cases, to accord with the style of gardening, it may be desirable that the sides of hedges should be cut perpendicularly; if such be the case, they may; but at the same time care should be taken that they do not project even so much as 1 inch beyond the upright line; if they are inclined as much inwards the effect will not be unpleasing to the eye, whilst even this slight and almost imperceptible slope will ultimately prove beneficial to the closeness, strength, and beauty of the hedge, tending to prevent its getting naked at the base. It will now be seen what trees and portions of trees and shrubs have been killed by the intense frost of the first week in January. All that is certainly dead should be cut away; some may spring from the root, as the ground covered by the snow was scarcely frozen. The ground, rough-dug before winter, should be forked, broken, and put in readiness for the reception of Bedding plants which are being reared for planting out at the proper season. In the meantime, compost should be prepared for such kinds of *Pelargoniums* and other bedding plants as may require it. When the dressing of the ground from its rough state is done, the lawns should be picked of all sticks and spray, then well swept and rolled. The walks should be fresh gravelled, and their surfaces left with a perfectly regular and gentle curve, so that when consolidated by rolling, the rain water as it falls may more readily find its way by surface-drainage than it could by under-drainage. The planting of *Roses* should not be delayed; the vigour of all rosaceous plants is promoted by early planting.

FLORISTS' FLOWERS.

Auriculas.—Give plenty of air, and as they will now be throwing up their trusses of bloom, more water will be required; being in a now forward state of growth they will be more susceptible of cold than previously, therefore frosty nights must be guarded against, as well as cold, drying, easterly winds. *Carnations and Picotees.*—Potting for bloom may now be proceeded with, commencing with the more robust varieties. Three plants are preferred in an 11-inch pot, and two in an eight-inch one. In potting press the soil closely with the hand, and when potted secure the plants immediately with neat small sticks. Those yet remaining in small pots will require particular attention as regards watering, otherwise if drying winds prevail the plants are apt to suffer. Any that are in danger of starting too early into bloom on a south border should be removed to a north one. *Dahlias.*—This month is the best time for propagating the general stock. Seed may be sown: it is best raised in strong moist bottom heat. *Fuchsias.*—Repot into five or six-inch pots those that were first struck, using light rich soil. Stop those that are growing too tall and straggling. Stopping will have the effect of causing them to assume a more compact growth and a handsomer form, especially if the young shoots are judiciously trained out. *Hollyhocks* should have plenty of air in order that they may not feel much check from planting out next month. Shift into larger pots those struck in the course of the winter. Plant out seedlings towards the end of the month. Protect from slugs. *Pansies.*—Expose those in pots in frames to gentle showers, and to the free air when the weather is favourable. Peg out the shoots. Plant out seedlings wintered in pans, and likewise any stock left in pots. Sow seed saved in autumn. *Pinks.*—Those plants that have been loosened by the frost should have the earth firmly pressed about their roots when it is tolerably dry; then the surface should be top-dressed with a mixture of about equal parts of good rich soil and rotten manure. *Tulips.*—These will require to be protected from frost, hail, and strong cutting winds; but they should be freely exposed to the weather when not unfavourable.

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Jas Andrews del et lithog

Cattleya Warscewiczii

THE NEW GRENADA CATTLEYAS.

WITH AN ILLUSTRATION.

If we cannot as yet exactly speak of Orchids for the million, we may certainly entertain the notion of Orchids for the many, since it has been discovered that a goodly number of the most charming amongst them—Cattleyas, Lycastes, and Odontoglossums in particular, will grow, aye, and thrive, under what is called "cool" treatment. Prominent among these Cattleyas is a varied group, which bears the name of the lamented Warscewicz, and which is well represented by the plant selected as our illustration, for which we are indebted to W. Marshall, Esq., of Enfield.

This Cattleya Warscewiczii is, as we have said, a most variable plant, the imported examples differing in the size, form, and colouring of their flowers, just as a batch of seedling Pelargoniums raised in our greenhouses might vary in these respects. They pass from pure white through every blushing shade to deeply tinted rose, but are all marked by the presence of an orange-coloured blotch on the lip. The blending of colours in some of them is remarkably beautiful. To different forms different names have been given—as Trianæi, rose-colour, Wageneri, white, and quadricolor, parti-coloured, but they are all specifically identical, and possibly not even themselves distinct from the better known Cattleyas, labiata and Mossiæ. Mr. Anderson, who has won his laurels as an Orchid-grower, has obligingly sent us the subjoined remarks respecting these New Grenada Cattleyas:—

From the very centre of this tropical region comes a batch of Cattleyas, which for loveliness and diversity of feature are unapproached by any cognate species. Even Orchid-growers have scarcely yet had any idea of the value of the New Grenada Cattleyas for decorative purposes, from New Year's-day, past Candlemas, on to the very end of March. We have been so long accustomed to tiny specimens of Wageneri, Warscewiczii delicata, Trianæi, and the many intermediate varieties, which are just so many shades darker or lighter in the sepals, petals, and labellum, that up to the present time it has not been within the bounds of possibility to fairly estimate their merits. Thanks to the enterprise of Messrs. Low & Co., Messrs. Backhouse & Son, and others, including, of course, Mr. Weir's efforts in that direction in behoof of the Royal Horticultural Society, we have now supplies nearly equal, at all events proportionate, to those of Mossiæ, Leopoldii, amethystina, and some others. And what about the flowers? Wherein is the superiority manifest from the original specimens in the collections of the country?

In order to appreciate the case fully we had better deal with facts. For example: we have Wageneri, for which we paid ten guineas, and Warscewiczii delicata, which cost quite as much, both remarkable for their size when introduced into the collection—some three back bulbs and one "lead!" Trianæi and Warscewiczii were bought in later at a lesser, although at a very high figure, and all have bloomed. The delicata variety, of which a splendid plate has been produced in Mr. Warner's *Select Orchidaceous Plants*, now bears thirty-three very fine flowers. In the imported plants we have not only all these types, but we have as much variety as is to be seen in a collection of Pelargoniums similar in number, and many of them vastly superior to others in form, in substance, and in every other feature which constitutes excellence in a flower. Even judged by the canon of the florist, many of them are

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unexceptionably perfect in outline, and the colours vary from pure white in the sepals and petals to the richest and most delicate peach. Then as to the labellum, no labiata, than which we used to think nothing more perfect, can eclipse or even rival them. The labellum in many of them is entire at the extremity, and what is so enchanting, or rather enamouring about it, is that the splendid velvety crimson that adorns the lower part is as unbroken in density and as distinct as the most solid eye of the best Pansy which ever graced an exhibition-stand. In Mossiæ, labiata, and all that type, these glowing colours run out towards the extremity into softer shades, but the finest form of Trianæi does not. Some of the forms of it are beautifully margined with white or pale rose, and the margin is as definite as the lines in a ribbon-border. Then the yellow blotch planted upon the centre, which is the more distinguishing characteristic of the group, is prominent in every form of it. Sometimes it may be more dense, or more vivid, or it may run from a pale straw to a glowing orange, but it is always there, and always prominent and observable. The outline is much more desirable than in the flowers of the original plants, being much better filled up. This is the advantage in having numbers to prove, and only adds to the definiteness of the conclusion long since arrived at by every one who has sat and studied a little at the feet of Nature—that no two seedlings are alike, and that some possess more desirable forms and colours than others. Does the reader want any more data to induce him to invest a little money in these Cattleyas? The very plants I am writing about can be secured at twelve guineas a-dozen, and no such little tit-bits as the rarities which erst while fetched ten guineas a-piece!

An important piece of intelligence for those amateurs whose families are so much affrighted at the tropical heat in the tropical houses, that however much they love and admire the "air plants," they cannot endure the suffocating temperature, is that *these Cattleyas grow and thrive beautifully in cool houses*, because they are found at great altitudes. We have had dozens—aye, scores of their flowers during the past months untarnished by the least speck or spot, growing in the temperature which every lady and gentleman would wish to see maintained in the parlour or dining-room, and well aired during the day. Intermingle amongst such as these, a few foliage plants remarkable for grace and elegance, such as Ferns, with Hyacinths, and a diverse lot of other Orchidaceous flowers, and—pardon me for running into ecstacies, and getting for the moment lost in admiration—imagine if Paradise could be even more beautiful than this!

Cattleyas can now be had "all the year round." The gap which occurred between labiata and its fellows, and amethystina and the intermedia section, which always precedes the lovely Mossiæ, is now filled up; amethystoglossa also coming in to the rescue, flowering freely in the months of February and March.

One word before closing, and it is this—I love all Orchids, for they all possess traits of beauty, some prominently so, others under close investigation; but if there be one genus more than another that amply rewards the patience and skill of the culturist, that genus is Cattleya. To those who doubt, and would fain invest a little under "skilled advice," I say most of the members of this interesting family are good and cheap. Try a few, and make a beginning.

Meadow Bank. JAMES ANDERSON.

ABIES MENZIESII AND ABIES SMITHIANA.

Abies Menziesii.—Mistakes appear to be often made in the descriptions given of this truly noble, ornamental, and free-growing tree, which is second in merit to no introduced species of the extensive family of Coniferæ. It is a lovely "every day" tree. In the arboretum here, there is a plant of it 70 feet high, having, as a leader, a shoot of last year's growth from 2 to 3 feet long, and with shoots from all the side branches in proportion. The diameter of the space covered by the branches is upwards of 40 feet, the circumference of the bole more than 8 feet, and the tree is furnished to the ground with its dense branches and foliage. The latter is retained on the branches for from five to seven years, the greater proportion of it for five years, so that the branches are so densely set with foliage of five years' standing that it is impossible to see the least portion of the bole without putting them on one side to admit the light, or creeping underneath.

This noble tree, though in company with many other fine species, is so conspicuous that the eye is attracted to it at a long distance, particularly when the sun shines. With the wind stirring, and the sun shining on its lovely foliage—silvery white underneath, and of a rich blue green above—while the pendulous brown cones are dangling from its branches, what a remarkable contrast it affords to other Conifers, and what a fine spectacle it presents!

The cones first appear in April; they quickly attain their full size, and change in colour from a bluish dusty green to brown. The seed is ripe in the end of September and beginning of October. Sunny windy days very soon cause the cones to open wide their scales and shed their seeds, which become scattered by means of its slender wings. The male catkins are pendulous, and plentiful in March and April.

Abies Smithiana, which is by some called Khutrow, Morinda, &c., is a charming Conifer, worthy of a place in every collection, being quite hardy, distinct, and very graceful. As it advances in age, it also gains in beauty. On turf, where sufficient room is allowed for its independent growth, or where not cramped for room by other plants, it becomes clothed with branches to the surface of the ground, and attains the height of 25 or 30 feet. With its pendulous or drooping branches, the tree has a remarkably interesting and ornamental appearance, more particularly when furnished with its handsome shining chestnut-coloured cones, which here grow to the length of from 5 to 7 inches, and are from 2 to 2½ inches in diameter. They are shining as if freshly varnished, first make their appearance in April, are soon fully grown, and are ripe in October. The seeds are small, and of a dark colour.

Bicton Gardens. James Barnes.

SELECTED ZONAL PELARGONIUMS.

The French growers of the Zonal Pelargonium are, like ourselves, overwhelmed with varieties, differing, many of them, in a very slight degree from each other. They have, therefore, felt the necessity of doing for themselves, what for us is done by the Royal Horticultural Society's Floral Committee—namely, selecting the most meritorious kinds of the various colours, and rejecting the inferior sorts. For these purposes the extensive collection grown in the garden of the City of Paris under the care of M. Barillet, has been critically examined by a Commission charged with this

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special duty, and consisting of MM. Carrière, Emile Châté fils, Dufoy, Malet, Domage, Ermens, Legrand, Rafarin, and Urbain.

This Committee met in August last, and selected the following sorts as the most deserving of cultivation. They are here arranged in bracketed groups of different shades of certain leading colours, as given in the French journals, those of the deeper shade in each case standing first. The brackets indicate different shades graduating down towards the lightest. Those marked with an asterisk (*) were approved for cultivation under glass, the others for the open garden in the climate of France. The figures 1, 2, 3, indicate the first, second, and third degrees of merit:—

White.

White Tom Thumb*—1 (also for open air).
Blanche de Castille* (Boulanger)—2.
The Swan* (Bull)—2.
La Vestale* (Babouillard)—1.

White, tinted.

Virgo Maria (Nivelet)—1.

Lara (Lemoine)—2.
Schneeball (Hock)—1.
Madame Vaucher (Babouillard)—2.
White Perfection.

Red or Salmon-eyed.

Les Gaules (Lemoine)—1.

Eugènie Mézard* (Babouillard)—1 (also open air).
Charlotte Corday (Nardy frères)—2.

Gloire de Corbeny* (Babouillard)—1 (also open air).
Madame la Baronne Haussmann* (Ville de Paris)—1 (also open air).
Mathilde Moret (Chardine)—3.

Havilah (Jarlot)—2.
Baronne de Staël (Malet)—2.
Madame Rendatler* (Nivelet)—2.

Charles Rouillard* (Mezard)—2.
Nina Hock (Hock)—3.

Madame Prudent Gaudin (Bruant)—2.

Amelina Grisau* (Lemoine)—1.
Ary Zang—2, for edging.
Norma.*—2.
Princesse Alice (Smith)—3.

Madame Danguy* (Nardy frères)—2.

Monseigneur Lavigerie (Rendatler)—1.
Le Prophète (Lemoine)—1.
Madame Dufour* (Malet)—1.
Brillant de Toulouse* (Smith)—3.

Ludwich Uhland (Weinrich)—2.

Marie Labbé (Chardine)—1.

Dame Blanche* (Plaisançon)—1.

Madame Berthe Fôache* (Rendatler)—1.
Madame Verlé* (Babouillard)—1.
Gaëtana* (Weick)—2.
Souvenir de M. Peyrot* (Bruant)—1.

Rose.

Madame Ermens* (Ville de Paris)—extra.
Christinus (Babouillard)—1.
Mademoiselle Henriette Renoult.
Jules Arlet.

Rose, with white eye.

Beauté de Suresnes (Cassier)—2.
Beauté du Parterre (A. Dufoy)—1.
Rose de Madrid (Jarlot)—3.
Gloire des Roses* (Varengue)—2.
Belle Rose* (Rendatler)—2.

Beauté d'Europe (Crousse)—1.
Gloire de France—3.

Rose Rendatler (Rendatler)—2.

Kœtchen Schreurer (Hock)—extra.
Mademoiselle Noémie Legendre (Paulin)—2.

Carmine Red.

Cardinal* (Crousse)—1.

Ornement des Massifs (Crousse)—2.

Triomphant* (Boulanger)—3.
Impérial* (Richalet)—3.
Abondance (Nardy frères)—2.

Amédée Achard* (Crousse)—1 (also open air).

Staatsrath Valher* (Weinrich)—3.
Madame Madeleine* (Lemoine)—2.
Christian Deegen (Lemoine)—1.
Hardy Gaspard* (Boucharlat)—1.

Macrantha* (Liabaud)—2.

Lapéyrouse* (Rendatler)—2.

Vulcain (Smith)—3.
Louis Roezeler (Rendatler)—2.
Nora (Bull)—2.
Nardy frères* (Puteaux-Chaimbault)—1.

Victoire de Puebla (Chardine)—1.
Herald of Spring (Turner)—2.
Tintoret.
Madame Génisset (Nardy frères)—2.

Madame Rudolphe Abel* (Crousse)—2.
Bonnie Dundee (Bull)—2.
Monsieur Julien Meunier (L'Huillier)—1.

Orange Red.

Tom Thumb—3.

Frogmore—3.

Les Misérables (Lemoine)—2, for edgings.
Boule de feu (Nivelet)—2.
Henri Lierval (De-champs)—1.
Etoile des Massifs (Boucharlat)—3.
Madame Galland (Boucharlat)—3.
Langewicz (Lemoine)—2.
Etendard (Richalet)—2.
Le Zouave (Lemoine)—1.
Hugo Englert (Weinrich)—3.
La Foudre (Lemoine)—1.

Prince Impérial (Jarlot)—2.
Marvel* (Bull)—2.
Sobiesky (Lemoine)—1.

Triomphe de Courcelles (Varenguo)—3.
Etendard de Flandre.
Léonidas (Lemoine)—extra.
Boule de feu (L'Huillier)—2.
Etendard des Rouges.
Clipper* (Smith)—3.
Georges Nachet (Rendatler)—2.
Victor Lemoine (Nardy frères)—3.

Monsieur Maugenet* (Jarlot)—1.
Daniel Mannin (Lemoine)—3, for edgings.
Donald Beaton* (Paul)—3.
Monsieur Aimé Dubos* (Boucharlat)—1.
Directeur* (Richalet)—3.

Doctor Lindley* (Bull)—3.
Président Réveil (Nardy frères)—3.

Le Géant* (Boucharlat)—3.

Revisor Kulmann (Weinrich)—3.

Mexico (Chardine)—3.
Effective* (Bull)—3.
Madame Aunier (Nardy frères)—2.

Victor Millot* (Crousse)—1.
Le Niagara (Lemoine)—2.
Fortuné Delmez (Crousse)—3.

Sunlight (Bull)—1.
Vercingétorix (Lemoine)—2.
Woodwardiana* (Henderson)—3.

Jules César (Lemoine)—1.
Madame Léon Loisel (Malet)—1.
Marie Vincent (Crousse)—3.
Ami Rabotin (Rendatler)—2.

Salmon Red.

Emile Licau (Licau)—extra.
Beaton's Indian Yellow* (Paul)—2.
Madame Travers (Rendatler)—2.
Madame Fischer (Weinrich)—3.
Abbé Samson* (Martine)—2.
Archevêque de Paris (Lemoine)—3.
Madame Calot (Lemoine)—1.
Exquisita (Hock)—2.
Monsieur Pagès (Nardy frères)—2.

Le Titien (Crousse)—3.
Jean Valjean (Lemoine)—1.
Monsieur Barre (Babouillard)—1.
Comtesse de Pourtalès (Rendatler)—2.

Etienne-Henri (Rendatler)—2.
Saint-Fiacre (Lemoine)—3.
Madame Ninette Sacchero (Crousse)—3.
Madame Loussel* (Malet)—2.

Salmon Rose.

Madame Rougier (Chardine)—3.

The Nosegay and Variegated varieties must form the subject of another paper; as must also the results of the trials which were made last season at Chiswick, and not yet officially reported.

M.

ON BEHALF OF THE EVERGREEN BERBERRIES.

The evergreen species of Berberis are very much grown here, being especial favourites with my employer, both on account of their hardiness, and from their coming into flower early in spring. As under-shrubs they are very valuable, being more hardy than the common Laurel. In the severe winter of 1860 we had the Laurels, both Portugal and common, as well as Aucubas, Bays, and indeed almost all evergreen shrubs, killed down to the ground; but Berberis Aquifolium stood 34° of frost without losing a leaf, in any part of these grounds, though some of them were growing close to the water in two separate places, in both of which they escaped without injury. This fact induced me to plant them more extensively than before, as they are very pretty, not only in the spring when covered with their golden yellow blossoms, but also in the autumn when their branches are laden with purple fruit. Unfortunately the feathered tribes are so fond of the fruit that they eat them up as they would Gooseberries or Currants, and thus rob the plants of their autumnal beauty.

Since 1860 we have planted three other kinds, which I think would be more commonly used if they were better known. These are Berberis Bealii,

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japonica, and Darwinii. The first, Berberis Bealii, commences to bloom about the beginning of November, and is in full bloom early in February; the flowers are of a very much lighter yellow than those of B. Aquifolium, and the fruit is much larger, somewhat resembling black Grapes, and ripens in the early part of the summer. Where fine-foliaged hardy plants are grown, this is one of the grandest that I know of. The plant I have before me was five years ago turned out of a three-inch pot into the position where it now stands, and at the present time it is rather more than 4 feet high, and 4 feet through. The foliage is particularly fine, some of the leaves measuring 14 inches in length. Berberis japonica differs but little from B. Bealii either in habit of growth or in the colour of the blossom, but it is not quite so robust a grower.

The remaining species, of which mention has been made—namely, Berberis Darwinii, deserves to be brought into general cultivation. It differs in various ways from the others I have mentioned. The flowers of B. Darwinii are of a deep orange yellow, and are produced very freely in the spring months, while the habit of the plant is most graceful, so that it is very ornamental either when in flower or fruit. The foliage somewhat resembles that of the Holly in miniature, the leaves being not more than an inch in length. The plant is very hardy, and of vigorous growth, indeed it is one of the fastest-growing shrubs that I know of.

One great advantage which these species of Berberis possess is this, that they will grow, as they do here, on various soils, from peat and sand to heavy loam. Another is their hardiness, as evidenced by their having stood unmjured the test of 28° of frost on two occasions here during the month of January.

Elsenham Hall Gardens. WILLIAM PLESTER.

NEW FLOWERS.

IN continuation of the notes on New Flowers broken off at page 47, it may be remarked that New FUCHSIAS were very sparingly shown during 1866. Mr. Cannell, of Woolwich, had some very good double varieties, such as *King of Doubles*, with scarlet tube and sepals, the latter well reflexed, purple corolla striped with dull crimson, and very double; and *Monster*, scarlet tube and sepals, violet purple corolla, large and showy. *Mrs. Gladstone* (Bland), also in the hands of Mr. Cannell, is a very beautiful flower, the tube and sepals scarlet, the corolla single, waxy white, feathered with scarlet. Mr. Smith, of Hornsey Road, has a monstrous double variety named *Norfolk Giant* (Hills), with crimson scarlet tube and sepals, violet purple corolla, a fine exhibition kind.

In regard to the HOLLYHOCK, Mr. Chater has two or three good things, such as *Frederick Chater*, pale yellow tinted with buff, flowers large and full, and of fine quality; *Speciosa*, salmon buff suffused with rose, the flowers large and close; and *Edward Speed*, pale purplish grey, a very novel shade of colour, flowers full and compact. The two first were awarded first-class certificates, the latter a second-class. Exhibitors will be much pleased with Chater's *Nonpareil*, rich dark maroon crimson, suffused with purple; and *Attraction*, delicate silvery shaded rose, fine form, and producing an excellent spike. Messrs. Downie, Laird, & Laing have fine varieties in *James Anderson*, bright rosy lilac, fine form; *Mrs. Hastie*, clear bright rosy peach, a beautiful colour; *William Thomson*, bright rosy scarlet, flowers of excellent form: and

John Downie, clear rosy salmon. The three first-named were awarded first-class, and the last a second-class certificate.

The New HYACINTHS were fully described at page 70 of last year's volume, and as it may be years before they ever become circulated, (if at all), there is no need to recapitulate them here. It may, however, be noted that the name Vunxbaak should be corrected to Vuurbaak, which means literally Fire-beacon.

The fine variety of LILIUM AURATUM, called *splendidum*, shown by Messrs. W. Cutbush & Son, and which was awarded a first-class certificate, has the novelty of possessing bands of dullish crimson instead of those of the usual orange colour. It is highly attractive.

The bedding LOBELIAS have a valuable addition in *Beauty of Ravensbourne* (Carter & Co.), remarkably dwarf and compact in habit, and having a profusion of small lilac and white flowers. It has been well tested, and can be pronounced an invaluable bedding plant. The herbaceous section of the fulgens type show a marked advance both in variety of colours and in the stoutness of their flowers. Mr. Kinghorn and Mr. Bull have been very successful, and such varieties as *Distinction*, rosy cerise; *Ruby*, ruby rose, suffused with violet; *Glitter*, showy bright scarlet; *Peach Blossom*, soft pinkish peach; *Progress*, bright crimson; *Matchless*, bright reddish purple; and *Excellent*, shaded magenta, are real acquisitions.

The show PANSY proper has one good representative in Bryant's *Colonel Murray*, a yellow ground flower of good properties, with broad maroon belting. It was awarded a first-class certificate. Messrs. Downie, Laird and Laing have a good batch of Fancy or Belgian Pansies. *Thomas Downie*, a white ground flower of good form and substance, with deep purple blotches and veins of the same colour; *Miss J. Kay*, lower petals bright yellow, with large crimson maroon blotches, upper petals magenta crimson; and *Hugh Adair*, white ground, with large blotches of dark mauve in the lower petals, upper petals bright magenta, a flower of fine quality, are real acquisitions. *Countess of Munster*, *Ninian Niven*, and *Orange Boven*, of the same batch, are also valuable flowers. Their *Imperial Blue* promises to be a good bedder, the depth of colour is something very desirable. It has received a second-class certificate.

There is a very pretty PHLOX DRUMMONDII named *Louise Grelle*, having white-ground flowers, with rosy carmine streaks, which surpasses Gen. Radetzky in brightness, and would form a very striking bed.

A very fine variety of the PINK named *Princess of Wales* was shown by Mr. Turner, the flowers were regularly and heavily laced with dark rosy crimson. It was awarded a first-class certificate. In *Rubens* Mr. Turner has an excellent forcing variety, with pale lilac flowers, very free-blooming; and Messrs. E. G. Henderson & Son have *Most Welcome*, a perpetual kind, laced with dark crimson on a white ground; it is also very fragrant.

Some very pretty Dwarf Bedding TROPÆOLUMS, in the way of *Lobbianum elegans*, will be distributed this season, seedlings raised by Mr. George, of Stamford Hill. The following had their merits recognised by the award of first-class certificates:—*Compactum* (H. Cannell), bright orange scarlet shaded with crimson, very free and showy; *King of Scarlets* (G. Smith), very brilliant scarlet, compact dwarf habit, and very free; *Luteum Improved* (H. Cannell), rich golden yellow, with small crimson spots, bushy habit, and an abundant bloomer; *The Moor* (H. Cannell), rich velvety maroon, deepening to black about the throat, good habit; and *Scarlet Gem* (H. Cannell), brilliant orange scarlet, small flowers of good shape, very freely produced.

Verbenas, as usual, were plentiful, but owing probably to the hot weather that prevailed for a time, were sparely shown. *Lady of Langleybury* (Cruickshanks), one of the most striking, has striped lilac and white flowers, the colours being well defined, so that it will form a good exhibition kind. This with *Coleshill* (Eckford), intense scarlet, with lemon eye, pips large, and forming a very showy truss; *Gladiator* (H. Cannell), carmine deepening to crimson, white eye, a fine exhibition variety; and *Shakespeare* (S. Perkins & Son), bright scarlet shaded with crimson, conspicuous white eye, pips large and very stout, fine for exhibition, were awarded first-class certificates. *Earl of Radnor* (Eckford), light scarlet, with pale lemon eye, habit good; *Harry Law* (Perry), deep rosy cerise, with dark ring round a large lemon eye, pips stout and of good size; *King of Bedders* (E. G. Henderson & Son), brilliant crimson red, a fine bedding variety; *Lady Folkestone* (Eckford), clear rose, very free-blooming; and *Umpire* (Eckford), purplish crimson and cerise, large lemon eye, pips full-sized, and excellent truss, received second-class certificates. *Auricula* (Perry), crimson shaded with purple, conspicuous white eye; *Gem* (Perry), intense bright scarlet, with white eye; *Harlequin* (E. G. Henderson & Son), white, regularly striped and flaked with purple; *Jewess* (E. G. Henderson & Son), violet shaded plum colour, good habit and free-blooming; *Purpurea* (Perry), crimson, suffused with purple, and deep crimson purple ring round a white eye; and *White Queen* (E. G. Henderson & Son), pure white, good habit, and a profuse bloomer—are all flowers that deserve to be looked after in the coming season.

Among Violets, *King of Violets* (E. G. Henderson & Son), produces very large and richly fragrant flowers of a fine indigo blue colour, and sometimes the flowers come striped with white.

The various groups of Pelargoniums must be reserved for notice in a future paper.

R. D.

THE ACHIMENES AS A BASKET PLANT.

In treating of the management of the Achimenes as a basket plant, it will be necessary to refer to the Baskets, the Soil, the Mode of Filling, and the Culture, and I will conclude by naming some of the best Varieties for this mode of cultivation.

And first of the Baskets. Any size from 6 inches to 18 inches across, is suitable; but unless the houses or corridors where they are to hang when in flower are very large, those from 9 inches to a foot across perhaps look best. The depth may vary from 4 inches to 8 or 10 inches, but a greater depth than this will not be needed. The best form for the baskets is the semi-globular, that is for suspension in free space to be seen on all sides; but a different or indeed any form may be used for hanging against a wall, or from a projecting bracket. Most baskets are made of galvanised or common iron wire, but cement, china, or any kind of pottery answers equally well or even better. If made of wire they should be closely worked, or a skeleton of zinc perforated with holes about 1½ inch or 2 inches apart should be placed inside the wire, or wire netting may be run round inside. However, if closely made neither of these will be necessary, for a closely compacted layer of white sphagnum or common moss from half to three-quarters of an inch in thickness, will answer the purpose of retaining the soil equally well. If common moss is used it should first be boiled to destroy slugs, and the larvæ of insects.

Having provided our baskets and lined them, we proceed to prepare our Soil. This should consist of one part peat, one of leaf mould, one of fibrous loam, and one composed of equal quantities of well-rotted cowdung, silver sand, and cocoa-nut refuse. The whole must be thoroughly mixed, and about a sixth part of charcoal in pieces from 1 to 2 inches square added. The compost must be used in a rough state. The drainage for all basket plants should consist of charcoal only, and as the baskets are flat and perforated, it need not exceed an inch in depth. The reason for using charcoal is, that it is one of the best drainage materials; probably locks up and gives out carbonic acid just when it is required, and certainly is the *lightest* material at command—the last consideration alone being sufficient reason for preferring it.

And now for the Filling or Planting. Turn out a store pot of Achimenes roots, and collect two or three dozen as nearly of equal strength as possible. See that all are healthy and prepared to start into growth. Then begin by placing a layer of soil over the drainage and a layer of the tubers, with buds downwards, upon it. If a zinc shell is used these buds must point in the direction of the holes; and the same precaution should be taken to ensure the free exit of each succeeding layer. If moss is used for a lining, it will be placed in as the planting proceeds, and the growing points placed just against or partially among the moss. In filling up the basket the centre should be kept rather the lowest, to ensure a better water supply. The quantity used in a basket will of course depend very much upon its size; but where the tubers are plentiful, and immediate effect is desired, and a large head in proportion to the size of the basket is wanted, I would advocate thick planting—say from 1 to 2 inches apart, all up the sides of the basket. Every layer of soil should be compressed pretty well between the layers of tubers. Care must, however, be taken not to break the long scaly tubers, as I have noticed that although any part may grow, the strongest and best growths are from the ends only, and the strength of the ends very much depends upon its having the whole length of the tuber to draw upon. Unless the basket is to be placed very high, the top may also be planted in the same manner as the sides, and finished off with white or common moss. The object of this is twofold: it gives a neat finish, and by preventing evaporation saves much watering in the future.

From this point Culture begins. Assuming that the soil is ordinarily moist, such as gardeners pronounce in good condition for potting, and that the tubers have been kept dry in the store pot, no water should be given for a week or a fortnight. The baskets may be placed in any house or pit with a temperature of 60°. In the course of ten days or a fortnight plunge all the baskets overhead into water at a temperature of 70° or 80° until the whole of their contents is thoroughly soaked. Then suspend them in a plant-stove, a vinery, or Peach-house, at work, or in any shady genial place until the shoots and leaves appear; and probably if they are kept shaded they will require no more water until then. From this period they must be placed in the light and carefully watered. The first few waterings should be heavy, for two reasons—to ensure that every part will be moistened, and to wash out any loose soil at once, so that it cannot mar the cleanly beauty of either leaves or flowers at a later period. If the tubers all grow regularly, they will need no attention but the common cultural care. If not, however, some stopping and tying may be needed at first to secure uniform growth afterwards. It is a very good plan to start the tubers in saucers or pans before placing them in baskets. Thus regularity of plant is insured at once,

and the plants are not so long in the baskets before flowering. In that case, of course, watering and proper culture would begin with the basketing.

Probably a temperature of from 60° to 70° suits the Achimenes best; but they will grow well in 10° less. I have invariably placed my baskets in a vinery at about 70°. When fairly in flower they are removed for a week or so to a lower temperature, and are finally suspended in a cool conservatory and a corridor of the same temperature. By putting in three or four lots every month, from the 1st of January to the 1st of April, they may be had in great beauty from June to the end of October, or indeed through most of the winter if the last batch is suspended in the stove. They certainly do not like flowering in a temperature under 45°; neither should they be hung too close to the glass; from 2 to 3 feet from it is quite near enough. If they can be shaded for, say three hours, from the direct heat of the sun in the middle of the day, their leaves would have a greener tint, and their blooms last longer.

To appreciate the full beauty of Achimenes in baskets, it is necessary to see them spheres of lilac, scarlet, pink, or white, a yard in diameter; nay thus must we relieve and break up the dull uniformity of our sky or roof views by their surpassing beauty. Some baskets of A. longiflora and Ambroise Verschaffelt, that I have seen can never be forgotten. The very form of the flower is endowed with new charms, when it thus reaches down to us, and there is no other position so well adapted for exhibiting its peculiar beauty. I ought to add that as the plants strengthen, and the baskets get full of roots, they require daily watering in bright weather, and will repay the grower for a small dust of guano or superphosphate of lime in their drink.

The weaker-growing sorts are the best for baskets. The whole of the varieties of A. longiflora are admirable; A. coccinea with all its rose-coloured relations, such as Meteor, Parsonsii, rosea elegans, magnificans, are also good; and so are the following—Edmund Bossier, Margaritæ, Dazzle, carminata splendens, Sir Treherne Thomas, Mauve Perfection, Carl Woolfarth, Hendersonii, and an old variety that I have long known under the name of patens. In one word, all those old or new sorts that require most propping up in pots, are just those that do best in baskets. The old grandiflora, Chirita, gigantea and picta are types of the upright varieties that do best in pots. Both classes are useful, but to those who have only room for one mode of culture, I confidently recommend the semi-prostrate sorts, that delight to hang from suspended baskets, as a constant source of amusement and satisfying pleasure.

Hardwicke House, Bury St. Edmunds. D. T. Fish.

THE DAISY.

This very humble evergreen herbaceous plant, the *Bellis perennis* of botanists (from *bellus*, pretty), was the delight of my boyhood, for I cultivated the Daisy for an edging, when my father allotted me a patch of ground about 12 feet by 6, for floriculture. As I advanced in years I found to my cost that this friend of my youth was a troublesome lawn weed, and that it had been rightly named perennial, for it proved remarkably tenacious of life. Every gardener has been tormented with its fine healthy appearance, in full bloom all over the lawn in little more than a day after mowing;

and, as the following quaint epitaph from an Irish churchyard indicates, it is destined to get the upper hand at last:—

> "Here I'm arrived, and my burden it aises,
> With the point of my nose, and the tips of my toes,
> Turned up to the roots of the Daisies."

This pretty composite flower, with its coronet of rosy florets, seems as if its involucrated head had been brow-bound with a reversible garland, for when the wild Daisy is expecting rain or heavy dews, we find it forming an elegant bud, beautifully tipped with pink; but when the sun shines, and the sky is serene, it shows the white star spreading from its golden centre, and in this state, wherever the highly-kept lawn is respected, the gaudy little weed is sure to be detested. In botanical works the Daisy is said to flower from March until August. I saw some in flower in January this year, and the previous weather had certainly not been by any means forcing—in fact, the Daisy was only a few days behind the Snowdrop in showing blossoms, and we may safely reckon upon its blooming in favoured localities until the end of October.

The large double garden variety not being a perfect flower, but a very beautiful transformation, is more shy of blooming, and seldom shows fine flower-buds excepting in spring. The double quilled kinds seem to have carried the transformation still further, and piped each floret, so that the style and character of the original type become altogether changed. Under ordinary circumstances these double flowers are barren, and consequently have to be propagated by division of the roots. There is a proliferous kind called the Hen-and-Chicken Daisy, which forms lateral flower-heads around the parent head—a mere oddity, and by no means ornamental like the garden varieties above noted. The Daisies have one very important point in a business point of view—they sell very well, having a good deal of decided character about them, and making pretty little presents for children; but the Daisy, as an ornamental flower, is not to be confounded with the lawn weed, nor with the Hen-and-Chicken varieties. There is a kind—*aucubæfolia*—having beautifully variegated leaves, and where the variegated leaf is required the plant is seldom allowed to flower, as the blossoms take away from the effect of the foliage.

In planting Daisies do not be alarmed about dividing them, only take care that some little rootlets be attached to each crown. If planted for edgings, about six plants should go to the foot; be careful to dip the roots of each plant into some rich mud, of about the consistency of thick paint, before planting; and if planted in finely pulverised soil and watered they will not fail to grow. for the Daisy is a sure cropper. I have mentioned this way of planting Daisies for edgings for the sake of the veriest beginners in floriculture, who, like myself, may have to start with the fourth part of a perch of garden ground. Let no one cheat the child out of such a harmless hobby as this, for I speak from experience when I say that I found great happiness in that small spot of black earth. It is, however, to the oft-recurring little patch of Daisies all along the sheltered border that I would particularly direct attention, for they are among the cheapest flowers we have, and never fail to bloom freely under very ordinary culture. In order to have them looking neat, let me advise that all the flower-heads should be constantly plucked off as they begin to tarnish in any way, either with soil from dashing rains, or from decay. It is surprising what newness of life will be imparted to pet plants by this slight attention. There is nothing either first or last in floriculture. The Cedar on the lawn, and the Daisy on the common, are limited according to the measure meted out to each.

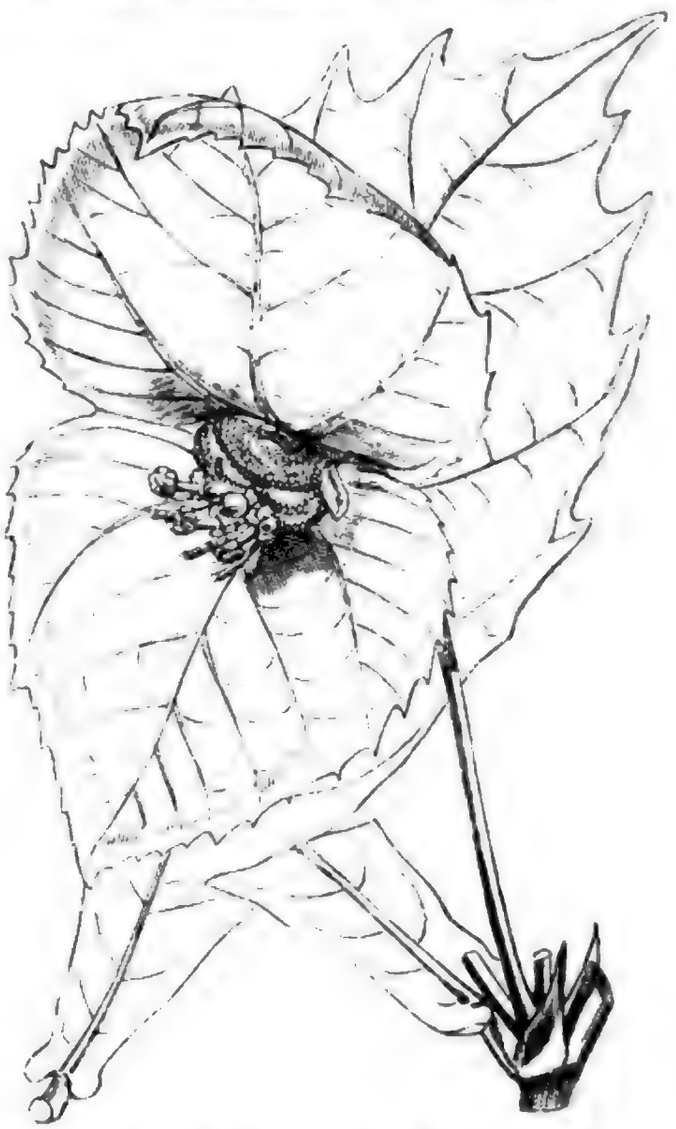
It is quite disheartening to a young cultivator to begin growing good

flowers, as they are called, for if they suffer the least neglect, they are done for; and there are a great many more bunglers in floriculture than it would be desirable to name. A few pence, however, well laid out on Daisy plants will do more for a permanent display of neat and very showy spring flowers than can be had from any other genus that I know of. Daisies neatly dotted round a curve at distances of about 6 feet, or in straight lines at the same distance apart, will give the early-spring border a charm quite peculiar, as the flowers are so well thrown up above the foliage, and there is such a dense mass of flower-heads if the plants have been well fed.

Salford. ALEX. FORSYTH.

NEW GARDEN PLANTS.

THE most remarkable novelty among introduced plants which has lately been made known is, doubtless, the *Dalechampia Roezliana rosea*, which has recently been figured by Dr. Regel (Gartenflora, t. 532), and exhibited by Mr. Bull at South Kensington, and of which, through Mr. Bull's kindness, we are enabled to give the accompanying illustration. The plant is a native of Vera Cruz, in Mexico, where it was originally detected by Roezl. It blossoms very freely, small plants of a few inches in height producing from every leaf-axil its peculiar inflorescence, the beauty of which resides in the large rosy pink bracts, which somewhat remind one of those of Bougainvillæa. The species differs from most of its congeners in being of erect not of climbing habit, and in having undivided not palmate leaves. It forms an erect low-growing undershrub, with obovate spathulate, subcordate leaves, 5 to 9 inches long, and 1 to 3 inches wide at the broadest part, smooth or nearly so on both surfaces, and furnished with ovate stipules. The peduncles are slender, axillary, angular, 2 to 3 inches long, supporting two large, broadly ovate-acuminate, denticulate, rosy pink floral leaves, within which are other smaller bracts placed around and among the male and female flowers, some of them thick and club-shaped, and bearing at the top a fringe of short, yellow, waxy-looking threads, which give a singular appearance to the blossoms. The plant, which



belongs to the Euphorbiaceæ, will be welcome in our hothouses on account of its beauty, its remarkable structure, and its total dissimilarity from every other plant in cultivation.

Another stove plant of considerable beauty is the *Clavija fulgens* (Bot. Mag., t. 5626), flowered at Kew; a shrub of tall, erect habit, with very large obcuneately spathulate leaves, and dense racemes, 4 or 5 inches long, of rich orange red flowers, seated in the axils of the leaves. As a free-growing stove plant of stately habit it is well worth growing. *Impatiens latifolia* (Bot. Mag., t. 5625), is another Kew plant obtained from Ceylon. It is something like the I. platypetala formerly grown, perhaps scarcely so ornamental, but its abundant, large, flat, purple flowers, and its facility of cultivation may render it useful. Mr. Bull has had under the name of Siphocampylus fulgens a very pretty stove perennial, which should bear the name of *Siphocampylus Humboldtianus* (Bot. Mag., t. 5681). Its habit is suffruticose, rather bushy than straggling, the stems bearing ovate-lanceolate leaves, and stalked tubular curved flowers of a bright vermilion scarlet with yellow throat, and having the limb-segments spread out like a five-pointed star. M. Van Houtte, in a recent Number of the "Flore des Serres," introduces to us some very beautiful novel forms of *Nægelia* (t. 1671-2)—those named *Lindleyana* and *rosea punctatissima* being particularly beautiful. They have richly coloured leaves in the way of zebrina and cinnabarina, but the flowers are yellow; the former of a deep primrose yellow, speckled on the limb with rosy crimson, and tinted with the same colour on the tube;. the latter of a pale straw-colour, also dotted on the limb and tinted on the tube with a lively flush of rosy crimson.

Among Orchids the curious and somewhat ornamental *Oncidium serratum* (Bot. Mag., t. 5682), has been flowered at Farnham Castle. It belongs to the Cyrtochilum group, has a twining flower-scape some 9 or 10 feet long, and bears a lax many-flowered panicle of odd-looking blossoms, the parts of which are of a chocolate brown, margined and tipped with yellow, the lip having rather more yellow than the rest. The upper sepal is broad and kidney-shaped, the lateral ones obovate-lanceolate, and much elongated; the petals ovate, acute, and connivent; and the lip small and hastate. It is a Peruvian species, requiring moderately cool treatment, and has been sold under the name of O. diadema. Two pretty little Orchids deserving of record here are the cream-coloured *Angræcum citratum* (Bot. Mag., t. 5624), a native of Madagascar, and the rosy-lipped *Sarcanthus crinaceus* (Bot. Mag., t. 5630), from Moulmein, both small-flowered, but little gems in their way.

As an acquisition amongst stove bulbs we may particularise the *Hippeastrum Alberti* (L'Illust. Hort., t. 498), a fine double-flowered orange red Amaryllis, introduced from Cuba by Mr. Albert Wagner, and now in the hands of M. Laurentius of Leipsig. Another plant of the same Amaryllidaceous family, recently made known, is *Griffinia Blumenavia* (Rev. Hort., 1867, 32), a species introduced to the Berlin garden from St. Catherine's by Dr. Blumenau, and forming a pretty dwarf bulb, with broadish leaves, and an umbellate inflorescence of pretty flowers, which are white, marked on the upper segments with a central bar of rose colour.

Pleroma sarmentosa (Bot. Mag., t, 5629), is a very showy sub-shrubby greenhouse plant from the cool valleys of Peru, where it is found at an altitude of 8000 feet. It is slender, straggling, and subscandent in habit, and has ovate, acute, hairy, bright green, five-to-seven-nerved leaves, and very handsome deep violet flowers 2¼ inches across, and very much resembling those of P. elegans. This has been flowered by Mr. Isaac Anderson-Henry.

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M. Van Houtte figures under the name of *Sedum maximum versicolor* (Flore des Serres, t. 1669), a pretty hardy herbaceous perennial, related to S. Telephium, which has cordate ovate leaves, elegantly variegated at the margin with white and rose colour. It bears also the name of S. Rodigasii.

Ulmus campestris aurea (La Belg. Hort., 1866, t. 19), is a very ornamental form of the Elm tree, obtained by M. E. Rosseels, of Louvain, by whom it is grown under the name of Ulmus antarctica. The leaves are of a deep golden yellow, here and there breaking into green or bronze, and very constant to the variegation. The French gardens introduce to us a handsome hardy shrub in the *Cotoneaster Fontanesii* (Rev. Hort., 1867, 33), a roundish branching bush, with ovate-elliptic leaves, silky below, and numerous small axillary heads of white flowers, which are succeeded by ornamental spherical fruit of a coral red colour. Finally, in *Weigela Middendorfiana purpurata* (L'Illust. Hort., t. 495), we have a beautiful hardy flowering shrub, with very showy bunches of deep rosy red flowers. We shall shortly have one or two interesting species of Hydrangea to add to this list.

M.

SELECT ORCHIDACEOUS PLANTS.*

The first series of Mr. Warner's "Select Orchidaceous Plants" forms a very handsome volume, containing illustrations of forty of the most remarkable species and varieties of that charming family known to cultivators. The folio size of the book has given the artists ample scope, of which they have not failed to avail themselves; and the descriptive matter is enhanced in value by the practical nature of the cultural hints which Mr. Williams has furnished. Altogether the volume, while specially addressed to Orchid-growers, is one which is in every way suitable to be laid on any drawing-room table.

The cultivation of Orchids, so far from being on the decline, appears to be in the ascendant. It is not, therefore, to be wondered at that Mr. Warner should come forward with another series of figures of these gorgeous plants, of which second series two parts are published. Mr. Fitch's admirable skill is shown to great advantage in these splendid figures, which are got up in the very best style of art, and are fully equal to those of the former series; while Mr. Williams's practical skill continues to furnish most useful hints to those who attempt the management of rarities of this character.

The subjects illustrated in the parts already issued are these:—1, *Cypripedium caudatum*, from a finely coloured specimen grown by W. Marshall, Esq. 2, *Phalænopsis intermedia Portei*, a charmingly delicate plant, with the lip of a rich rose colour. In reference to this, Mr. Williams observes: "a great many plants of Phalænopsis are lost through bad cultivation—perhaps more than of any other genus of Orchids. The reason is, that they get too much water and heat, which causes them to push away too luxuriantly, and as a consequence they become sappy, and cannot endure change of temperature to which they may be exposed. In this condition they get the spot, and if this happens they seldom or never recover under the same treatment." 3, *Dendrobium lituiflorum*, a splendid plant with much the same colours as D. nobile, but a finely marked trumpet-shaped lip. It is deciduous, with the habit of D. transparens, has flowers 4 or 5 inches across, blooms in March and April, and lasts a fortnight or three weeks in beauty.

* *Select Orchidaceous Plants.* By Robert Warner, F.R.H.S.: the Notes on Culture by B. S. Williams. London: Lovell Reeve & Co.

It should be grown in the East India house. 4, *Vanda Lowii*, the remarkable dimorphous character of which is well represented; this dimorphism, it has been observed, has about it nothing of an accidental character, for it is constant, nor of a functional character, for both kinds of flowers fertilised either with the other, have been made to bear seed. The plant is one of the noblest of its race, the bold distichous foliage, and the long spikes of flowers, often measuring 10 or 12 feet in length, giving it a remarkable grandeur of aspect. Unfortunately it is rare, and is likely to continue so, as it does not divide readily, and seems difficult to import. 5, *Oncidium chrysothyrsus*, a showy and effective species from South Brazil, having large thyrsoid panicles of clear palish but bright yellow flowers, the lip being very large and prominent and of this colour, while the sepals and petals are small, greenish, spotted with brown. It is less straggling in habit than many of its allies, and like them useful from the fine contrast it presents to most of the Orchids grown now-a-days. "It is much to be regretted that the species of Oncids are at present so little generally cultivated, for they undoubtedly include some of the most showy of Orchids; their bright yellow flowers form an excellent and striking contrast with the colours presented by other genera, while their gracefully drooping spikes render them in many instances most useful for grouping. Their blossoms, moreover, last a long time in perfection, both on the plant and when cut and placed in water." 6, *Lælia crispilabia*, a small-flowered but elegant-habited plant, supposed to be Mexican, and for some time cultivated under the garden name of L. Lawrenceana, though still exceedingly rare. Its flower-spikes are about a foot in length, drooping, and each supporting some half dozen very pretty flowers, of a rich amethyst purple.

We have said enough to show that this work must be one of special interest to the cultivators of this once purely aristocratic family, but which is now, thanks to the advent of the system of cool treatment, gradually assuming more democratic proclivities—imparting, that is, a higher degree of enjoyment to a greater number of lovers of flowers.

M.

THE EFFECTS OF THE FROST OF JANUARY, 1867.

The intense Frost which occurred in the early part of January, 1867, will be long remembered in many parts of the country, and through its disastrous effects upon vegetation it will probably often be quoted by way of comparison with succeeding years, in the same manner as its effects are now compared with those of 1860-1. It has taught us a few lessons with regard to the reliance to be placed on certain plants to occupy conspicuous positions, the remembrance of which ought not to be allowed to pass away without being placed on record for the future guidance of intending planters.

I should premise that the lowest temperature observed here was 1° below the zero of Fahrenheit, at which point the thermometer remained for about two hours, when it began slowly to rise, so that between 9 and 10 A.M., it stood at 3° for some time. This is lower than has been observed at this place since the celebrated Murphy's winter, when the register fell to 1½° below zero. It is fortunate in respect to the preservation of many kitchen garden crops, that the snow was very deep—quite an average of 14 inches, so that wherever they were covered by it they were perfectly safe, but wherever exposed they suffered most severely. Of Broccoli, for instance, the tall varieties with their heads standing up above the snow were quite killed, whilst the dwarf

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varieties came out after the snow perfectly scathless. This fact points to the utility of planting dwarf varieties, or else of following out the old plan of laying the tall ones down with their heads close to the ground. The same effects were observed among the winter Greens, the tall sorts being much injured though not killed, whilst the dwarf sorts were quite safe. Destruction in these cases, however, is soon remedied, and need not cost more than a passing regret; but it is not so in the case of our trees and shrubs, among which the effects will be long felt, and in many cases cannot be remedied for many years. Under circumstances like these, we are roughly awakened from our dream of fancied security, and lose the confidence we have hitherto reposed in the hardiness of many of our greatest favourites, and in their perfect fitness to occupy certain positions in decorative gardening.

In Coniferous plants especially, the havoc in some classes has been very great, whilst in many others they have passed through the ordeal uninjured, which fact should form a guide for future planting, since we are never safe from a recurrence of severe winters; and however beautiful a plant may be, yet if it requires protection from a low temperature, it ought not to occupy a prominent position where its loss would be irretrievable. Take for example the beautiful long-leaved Mexican Pines, such as Hartwegii, Montezumæ, Devoniana, Russelliana, patula, &c.: what reliance can be placed on them even under less severe conditions of temperature than those of the present year? At this place they are all killed. Fortunately only one occupied a conspicuous position, so that their loss will not be so much felt as would have been the case had the species from California been equally tender. Most of these latter species are uninjured; but I am sorry to say that one of the most beautiful of them, P. insignis, has suffered most severely, both at this place and in the neighbourhood. In the gardens of James Nasmyth, Esq., near here, this Pinus has been extensively planted, and it was quite deplorable to see the appearance they presented after the frost, many of them apparently killed outright, none unscathed. Mr. Wells has not planted them so extensively, but there are several very fine specimens from 30 to 40 feet in height which are very much cut up, some I fear quite killed, all, with one exception, having at the present time a peculiarly rich brown appearance, which is certainly picturesque, but far from desirable. That exception is the largest of them all, probably about 50 feet in height, and with a great spread of branches; this is untouched, arising probably from the fact that it is openly exposed to the north, and sheltered on the south by trees and shrubs. Should not this teach us that it is not advisable to plant P. insignis in situations where its loss would be looked upon in the light of a grievous calamity, or would cause a serious blank? If a dark-foliaged close-growing Pinus is indispensable, P. Laricio for colour, or P. Lambertiana for elegance would be infinitely preferable, because more reliable on account of their hardiness. I cannot at present perceive that any other Pinus is injured with the exception of P. Gerardiana, a species of Nepal, which is browned, but only on the north side. This is a very slow-growing sort, having only made a growth of 12 feet in twenty-four years.

I am glad to find that the noble species of Picea from California, such as P. amabilis, grandis, and nobilis are quite safe, as is also P. Nordmanniana, one of the most beautiful of them all, together with P. cilicica, very much like it, both being I believe from the same regions. The two species from Nepal, P. Webbiana and P. Pindrow, the former above 20 feet in height, have suffered very much indeed. The Silver Fir from the Black Mountains in Cephalonia, Picea cephalonica, which has produced cones so

freely at this place during the last few years, is perfectly hardy as regards frost, but is apt to start rather too early in the spring, so that the young shoots get nipped by the morning frosts which sometimes prevail at that time. This tendency to break early may be partially corrected by giving it a full exposure to the north and east, with trees on the south side high enough to shade off the morning sun. It is a very fast grower, and altogether a noble tree, worthy of more attention than is generally accorded to it. I shall have more to say on this subject.

Redleaf. JOHN COX.

HINTS ON THE CULTURE OF CHRYSANTHEMUMS.

CHRYSANTHEMUMS are too beautiful and too valuable as autumn decorative plants to be thrown out of cultivation; they are, moreover, very easily grown. Since the close of the last century they have been grown in British gardens, and our people have become almost as partial to them as the Chinese are reputed to be. The beauty of the leaves, the profusion and elegance of the flowers, and these standing in all their glory when the Dahlia and other autumnal flowers have yielded to the severity of the weather, are strong features of recommendation. They will grow in almost any soil or situation—in fact, they are everybody's flower.

Not only have the blooms of the Chrysanthemum been much improved of late years, but its cultivation has also extended, not about London only, but also in the provinces. When large quantities of flowers are wanted for in-door decoration in November and December Chrysanthemums are invaluable. They furnish me with many a good basketful at that season of the year when I would hesitate to cut flowers of stove or greenhouse plants in quantity. They grow and flower well when trained to south or west walls. In many parts of the south of England they look beautiful when trained to the walls of cottages. To grow fine plants in pots is attended with a considerable amount of labour, especially in summer, when so many other matters require looking after; but all this labour of potting, watering, &c., can be saved by planting them out in the open border. The following mode of treatment I find to answer admirably:—

Towards the end of April, divide the roots and thin out all the weak shoots, saving three or four of the best, then plant thinly in a border with a west or east aspect in rows 8 feet apart and 2 feet 6 inches from plant to plant in the rows. In planting them, plenty of leaf mould and rotten dung should be put around the roots in the holes, and the soil should be pressed well about them. The number to plant out should be decided by the requirements of the establishment; but in most cases it is best to plant too many rather than too few, as, if all be not wanted for lifting and potting in the autumn, those left in the open borders will flower well in mild seasons like the last, and the flowers will be useful for decorative purposes. If the weather be showery at the time of planting out, they will not require watering, but if it should be dry, they should have one or two good waterings until they get established. By the beginning of June they will be growing freely; the shoots should then be all stopped and tied out, and they should not be stopped afterwards. In ordinary seasons they will require little or no watering, but in such as the summers of 1864 and 1865 they should occasionally have a good soaking of water.

Towards the middle or end of September the plants will be showing flower-buds, and should be lifted and potted, using a compost of turfy loam and

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rotten dung. If they are lifted carefully they will not suffer much from the operation, as the leaf soil and dung put around the roots at planting-time will be one mass of fibres. When all are potted, if the weather be mild and showery, they should be placed on a north aspect for a few days to get established, they should then have full exposure; if the weather be dry and frosty at nights and a good deep pit be at liberty, they should be put into it and the lights kept a little close until they get established, when they should have all the air possible, leaving the lights off day and night in mild open weather. The buds will now begin to swell fast; all the smaller ones should be carefully thinned out, as this greatly promotes the growth of those left, and is indeed, the only way of procuring an extraordinary bloom. Until November they should be liberally supplied with water, and occasionally with liquid manure.

When the flowers begin to expand the plants should be removed to the greenhouse or conservatory; they will then furnish a fine display of flowers until late into January. For furnishing large quantities of cut flowers we have no plants to equal them at that season. Plants for cutting from can be kept in pots or temporary structures quite out of sight, and unlike many other plants, these plants are no worse for another year when all the flowers are cut off. When the flowers have all been cut off, or are faded, the flower-stems should be cut off, and the plants all placed in a pit where they can be protected in severe weather, until planting-time in April comes round again.

By the foregoing very simple mode of growing Chrysanthemums, involving no great amount of labour or attention, a grand display of these beautiful and cheerful flowers can be had during the dark dull days of November and December.

Stourton. M. Saul.

NOVELTIES, &c., AT FLOWER SHOWS.

One of the most interesting features at the meeting of the R.H.S. Floral Committee, March 6th, was a group of *Mignonette*, from the Rev. G. Cheere, Papworth Hall, St. Ives. The plants were from 18 to 24 inches in height, the diameter corresponding; they were covered with spikes of flower, and from base to apex every leaf was beautifully green and healthy, yet these wonderful plants were only growing in 48-size pots. Some of the spikes of flower were already 8 inches in length, and Mr. Cheere said they would attain 20 inches before they quite ceased blooming. The seed was sown in August last, and there had been no feeding of the plants at any stage of their growth. Next in point of interest were three specimens of *Phalænopsis Schilleriana*, from G. Cooper, Esq., of London. They differed in colour and in the form of the flowers, and were deservedly admired. It is said by some that the less marking there is on the foliage the better will be the flowers. There were also remarkably fine examples of *Cymbidium eburneum* and *Cœlogyne cristata*, from Messrs. Veitch & Sons; and a huge flower-head of *Brownea grandiceps* from Sir Hugh Williams, of Bodelwyddan. As the latter rarely flowers, it attracted considerable interest, being of great size, and beautifully coloured.

A new *Lælia* named *Pilcheri* was shown by Messrs. Veitch & Sons, and awarded a first-class certificate. It is one of Mr. Dominy's hybrids, and had "considerable attractions," the dark purplish crimson lip margined with pure white, being very beautiful. From the same firm came *Dendrobium*

Farmeri aureum, a very showy variety, but generally thought not to have so good a colour as D. densiflorum.

A novelty in stove plants, *Dalechampia Roezliana rosea*, of which a figure and description is given at p. 80, was shown by Mr. Bull, and awarded a first-class certificate. It will flower well-nigh all the year round. *Samyda nobilis*, a stove plant with large shining green leaves, also from Mr. Bull, has good bold foliage for a sub-tropical garden, should it be hardy enough to stand so much exposure. The golden-veined *Iresine Herbstii aureo-reticulata* was shown by Messrs. Veitch & Sons. As produced it would make a good conservatory plant, but its capabilities as a bedder have yet to be tested.

A group of double and single varieties of *Primula sinensis fimbriata*, shown by Messrs. E. G. Henderson & Son, showed an advance in the way of marking of the flowers, the result of hybridisation, but the plants were not good specimens; they looked as if they had suffered from travelling. Those named *Magenta King* and *Magenta Queen*, two bright-looking flowers, were too much alike, the colour being a bright magenta crimson, and the flowers large and well fringed; they also had Fern-leaved foliage. *Fairy Nymph* was a white flower flaked with rosy lilac: the blooms and plant of this were both small and ill-developed. *Blushing Bride* (a Fern-leaved variety), and *Fairy Princess*, were also too much alike to be variously named: the flowers were white, suffused and edged with pink. *Blushing Beauty*, a white-ground flower with lemon eye and circle of rosy lilac, was very novel, but the plant was small and weakly. The double varieties were very good, especially *Princess*, white, flaked with rosy lilac; and *White Queen*, pure white, the flowers extra large, and finely fringed. *Lilac Model* had large lilac double flowers. A very pretty group of *Cyclamens* was also shown by the same firm; one, strangely enough, had both red and white flowers of coum and persicum springing from the same tuber.

At the Royal Horticultural Society's First Spring Show, on March 19th, were two golden variegated forms of *Retinospora*, the one of dwarfer and closer growth than the other, both shown by Mr. Shenton, of Biggleswade. Messrs. F. & A. Smith had *Azalea Hector*, a new sort, of a dull dark crimson colour, the flowers medium-sized, of good form, and the plant free-blooming; this was commended. A commendation was given to *Cineraria Duke of Northumberland*, bright crimson self, with dark disc dashed with blue, shown by Mr. Fairbairn, of Syon House. The colour was superb, but the petals somewhat long and thin, though smooth. It is a very showy variety.

Messrs. E. G. Henderson & Son's golden-foliaged *Pyrethrum Golden Fleece*, raised from seed of the common double white, of dwarf and bushy habit, and promising to be a very useful bedding plant, was commended.

Messrs. Veitch & Sons received a first-class certificate for *Hippeastrum pardinum*, a decided novelty and a supposed new species. It had pale creamy ground flowers, densely marked like the spotted Calceolarias, with small rosy crimson spots. As shown, it was of a dwarf habit, and it awakened considerable interest. Messrs. Veitch also received a second-class certificate for a new Orchid, probably a *Mormodes*, a curiously-spotted species.

Mr. Bull received first-class certificates for two splendid *Aralias*—viz., *A. crassifolia picta*, with long narrow dark bronzy leaves, having a reddish rib, and blotched with pale green at the spines; and *A. spathulata*, having also long bronzy leaves, with a pale line running up the centre, and conspicuous spreading teeth of two sizes. Also for *Agave macracantha*, a small-growing kind, with pale slate-coloured leaves, and bronzy red spines. Mr. Bull

and Messrs E. G. Henderson & Son, had flowering specimens of *Rudgea leucocephala*, the former shown under the name of Psychotria macrocephala. In a miscellaneous collection of plants Mr. Bull had some species of Odontoglossum, among which were several beautiful varieties of O. Alexandræ.

Mr. W. Cruickshanks, gardener to W. Jones Loyd, Esq., of Langleybury, Watford, received a special certificate for a box of cut blooms of *Verbena Lady of Langleybury*, described at p. 76. It is a sport from Purple King, not a seedling: the flowers prettily striped, the segments being of a pale purple edged with white, and having a very cheerful appearance at this season of the year.

Mr. William Paul received first-class certificates for the following new *Hyacinths*:—*Prince Albert Victor*, single, glossy, crimson, very symmetrical spike; *Blondin*, very pale silver grey, excellent spike, and finely-shaped single pips; and *Lord Shaftesbury*, single, with immense large pale creamy-blush bells. A second-class certificate was awarded to *Linnæus*, a single bright magenta crimson, forming a dense spike, but rough. The foregoing, with Sir Henry Havelock, mauve, single, and Bird of Paradise, single, yellow, made up Mr. Paul's collection of six new kinds. These will receive a more extended notice in a subsequent Number of the Florist and Pomologist. Mr. Paul's stands of eighteen and six varieties of Hyacinths were wonderful examples of cultivation. Never before were such magnificent specimens seen. There was an exquisite finish about the whole that marked a near approach to the acme of Hyacinth cultivation. With one exception, Van Speyk, blue, his eighteen were all single varieties, namely:—Mont Blanc, La Grandesse, Snowball, and Grandeur à Merveille, white; Koh-i-noor, Vuurbaak, Prince Albert Victor, Solfaterre, and Macaulay, red; Sir H. Havelock, mauve; and King of the Blues, Baron Von Tuyll, General Havelock, Feruk Khan, Princess Mary of Cambridge, Blondin, and Charles Dickens, blue.

R. D.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society.—In addition to the Bury Show, which takes place in July, the Society hold this year, at South Kensington, two Spring Exhibitions, one on the 19th of March just passed, the other on the 16th of April. A special Prize Show is to be held on May 7th, in which New Plants are to be a leading feature, and Major Clarke invites the very interesting class of "Fragrant-blossomed Plants" as a novel feature. The Great Show of the season is to commence on June 4th, and to last five days, the last of which unfortunately clashes with the opening of the Manchester National Show. The prizes offered are liberal, and the selection of subjects seems to be judicious, affording a considerable increase of variety. Zonal Pelargoniums are for the first time placed on an equality with other Pelargoniums as regards the amount of prize-money, a position to which their merits fully entitle them, and a necessary step towards the attainment of perfection in their cultivation. A class is introduced for the Tricolor zoned Pelargoniums with their beautiful foliage, and Hardy Trees and Shrubs are brought in. The National Rose Show of the 2nd of July a show which is always held in high favour by visitors, closes the exhibition season of the Royal Horticultural Society.

French Botanical Congress.—The Botanical Society of France intends to organise an International Botanical Congress during the time of the Great Exhibition in Paris, to which botanists of all nations shall be invited. The Congress will open on the 26th of July next, and will last for a month. Meetings will be held every Friday evening at the Society's rooms, 84, Rue Grenelle St. Germain. On other days during the period, visits will be made to the Exhibition, to the Museum of the Jardin des Plantes, and to private collections; and excursions will be made in the neighbourhood of Paris.

Royal Ascot Grape.—Among the new Grapes raised by Mr. Standish is one to be called the Royal Ascot, which possesses so many good points that it is likely to be a most valuable acquisition for early forcing. It is a Grape of remarkable prolificacy; very commonly throughout the house devoted to it, the young shoots each show four strong

bunches. On one two-foot length of last year's cane we counted twenty such, and on one six-foot cane we were told there had been originally forty; the bunches themselves, too, being remarkable for size, sturdiness, and vigour, although the Vines are not yet overstrong, having made but one year's growth since they were planted. Though itself an early Grape, and perfectly adapted for forcing, its parents, the Bowood Muscat and Trovéren, are both late varieties, and though itself jet black, both its parents are white. The fruit in size and character very much resembles the Muscat of Alexandria, but is of an intense black colour, and possessing an excellent and slightly musky flavour.

Abergeldie Kale.—Mr. Tillery, writing of hardy Greens, reports that the Abergeldie, a dwarf variety of Early Kale, will stand any amount of cold.

Australian Spinach.—The new Spinach of Australia, *Chenopodium auricomum*, is a tall annual plant, growing nearly 6 feet high; the stem being erect, branched from the base, channelled, and streaked with violet red in the solid parts; and the leaves long-stalked, alternate, oblong-triangular, irregularly lobate-dentate, and when young bearing a silvery pulverulence, which disappears on the adult parts. The leaves, if put at first in boiling water, and afterwards treated as an ordinary plate of Spinach, form a vegetable agreeable to the taste. Its culture is quite easy: The seeds are sown in April in a well-manured bed, for the plant is a strong feeder, and requires to be watered freely. The leaves are gathered when the plants are 1½ foot high, they push on again, and in a few days after, another gathering is ready, and so on throughout the season.—(*Les Mondes.*)

Expert Propagation.—Two instances of special success in propagation by cuttings have lately been made known. The first is that of Chimonanthus fragrans, which Mr Bausé, the foreman of the floral department at Chiswick, has succeeded in striking from cuttings of the just-matured young wood, put in about July, and kept on a bed of ashes, without bottom heat, under hand-lights in a temperate propagating-house. In November the cuttings, when examined, were found to be callused but not rooted; but since that time they have made strong branching roots of 6 or 8 inches in length. The second is that of the Enkyanthus quinqueflorus, of which Mr. Standish's propagator succeeded in rooting four out of five cuttings formed of young wood when it had just acquired firmness. From a note communicated to the *Gardeners' Chronicle* by Mr. Joseph Baumann, of Ghent, it appears, however, that the Chimonanthus will strike from cuttings as easily and as quickly as Fuchsias do, by taking a young plant of it in February or early in March into a propagating-house, and when it has pushed young shoots, removing them and striking them, just like cuttings of Fuchsias. In a few days, it is stated, they will emit roots.

Hippophae rhamnoides.—A correspondent of the *Gardeners' Chronicle* draws attention to this as a very ornamental berry-bearing tree, in the following terms:—"This most beautiful berry-bearing plant is seldom seen in fruit—a fact no doubt arising from ignorance of its being unisexual. Hence, wherever it is planted it is generally alone, and therefore no berries can be produced; moreover, it is a straggling grower, and not by any means a general favourite with planters. I had the good fortune, however, a short time since to pay a visit to the nursery of Messrs. Backhouse & Son, of York, where I saw a bush about 7 feet in height, and as much through, having its stems literally covered with berries. These spikes of berries, if I may be allowed the expression, were from 6 to 9 inches in length; the berries themselves are of a primrose colour underneath, and with a little rose colour next the sun, about the size of large Holly berries, and somewhat oval in shape. Mr. Backhouse informed me that he travelled a long way to procure the male plant many years ago, but the sight which the tree presents must have amply repaid him. The male and female were planted close together, and the only care bestowed for this rich harvest, was occasionally to shake the male tree while in flower, thereby causing the pollen to fly off."

Effects of Snow on Trees during Frost.—In recording his experience of the frost of January, 1867, and its effects on Coniferous trees, Mr. Tillery observes:—"I am convinced that heavy falls of snow lying on the branches of some kinds of Conifers are injurious to them in severe frosts, for the branches being much bent, the bark and sap-vessels get ruptured. This is very apparent here amongst some young bushy Deodar Cedars. Where the snow was brushed off the branches, they have escaped, while those not done are much browned, and some of the trees, I am afraid, are killed. All young Conifers of the heavy-leaved tender sorts ought, therefore, to be relieved of the snow on their branches as far as they can be reached, when there is an appearance of intense frost."

Skimmia oblata.—The male plant of this species, of which the berried form is figured in our volume for 1865, proves to be the plant hitherto grown as S. fragrantissima. The parent plant of S. oblata some two or three years since bore a crop of berries which, no other Skimmia being at the time in bloom, were fertilised by its own pollen. In subsequent years this plant did not perfect its pollen; and in order to secure a crop of berries required to be fertilised by some other kind, recourse being had to S. fragrantissima with full success. Thus the male plant only of S. fragrantissima and the female (or sometimes hermaphrodite) only of S. oblata were supposed to be in culti-

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vation. The seedling plants from the self-fertilised berries above alluded to, having now blossomed, solve the mystery, males like fragrantissima and females like oblata being produced among them in about equal proportions. This conclusively proves that the two supposed distinct species are but the two sexes of one plant, which is sometimes hermaphrodite, though it would seem commonly unisexual.

Novel Hybrids.—Some interesting novelties among hybrid plants have recently been recorded. One is a very curious *Mallow*, produced at Nice by fertilising Hibiscus Moscheutos with the pollen of Malvaviscus arboreus. The hybrid has the habit and foliage of the mother plant, and its flowers are white at the base, as in that, but it is double, and the male parent has imparted to it some of its vermilion tints. It remains for a long time in flower, but its leaves are slowly and gradually shed at the approach of winter, those of the male plant being persistent during that season. It is very remarkable that double flowers should be directly produced as the result of a cross between two single flowers belonging to different genera. A Hybrid *Palm* has been obtained at Hyères by M. Denis. This has been obtained by fertilising Chamærops humilis var. arborescens with the pollen of the Date Palm, Phœnix dactylifera. The leaves are described as like those of the male parent, as also are the small orange-coloured ovate Date-like fruits; but the seed occupies nearly the whole of the interior of the fruit, is rounded or ovate in form, not grooved as in the Date, and the embryo, instead of being in the centre, is at one end of the hard albumen.

Root-grafting.—This may often be resorted to in the propagation of various stove plants difficult to raise from cuttings; and the practice has been adopted with success by M. Delchevalerie, the head propagator at La Muette. A small portion of the younger growing part of the root, is taken as a stock, and on it is grafted a scion of the same species. In this manner such plants as Coffea arabica, Nauclea undulata, Strychnos colubrina, Aralia trifoliata, leptophylla, and crassifolia, and the Rose du Roi, among others, have been multiplied. Care must be taken that the graft is not too long exposed to the air, and that the roots are perfectly healthy. The mode of grafting is immaterial. With due precautions plants may be obtained, it is said, by this method, within a very short time, at any season, while cuttings of the same species often take a year or more to root, even if they succeed at last.

OBITUARY.

Josef Ritter von Rawicz Warscewicz, whose death we regret to have to announce, died after a short illness on the 29th of December last, at Cracow, where he held the post of Inspector of the Imperial Botanical Garden. He died in the fifty-fourth year of his age. To Orchid-growers he will long be held in grateful recollection for the many fine things introduced by him in the course of his travels, and distributed in this country mainly through the agency of the late Mr. Skinner. Several Orchids, including Cattleya Warscewiczii, figured in the present Number, the fine dark Canna Warscewiczii, and other plants, will perpetuate his name among plant-lovers.

Mr. John Haythorn, formerly head gardener at Wollaton Park, near Nottingham, to three successive Lords Middleton, died at Nottingham, on the 10th ult., at the advanced age of 85. Mr. Haythorn had for some years past retired, and resided with his son, whose name is familiar to horticulturists as the manufacturer of Haythorn's hexagon net for protecting the blossoms of fruit trees.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

The plants in these houses will now be disposed to grow freely; and as the days are about as long as they are in the tropics, this natural disposition may be encouraged by a temperature of 70° at night and 85° in the day, or 90° in the sun as regards those from dry and sunny parts; but in the case of those from very hot and moist climates, and to which, consequently, a vaporous atmosphere is congenial, the intensity of the direct rays of the sun must be mitigated by a thin shading. By a little attention, observation, and experience, it will soon be understood when the shading may be safely dispensed with for the day; it may be removed when it is found that, unobstructed, the sun's rays have so far declined as to be no longer able to raise the temperature above the limits before mentioned. When this is found to be the case, the air should be somewhat reduced, further reducing it as the temperature seems disposed to fall. This, with due attention to watering, will induce substantial and vigorous growth, resulting in magnificent well-set flowers. Syringe occasionally. Shift the strong-growing kinds as soon as they require it. Pot off seedlings.

GREENHOUSE.

Endeavour to manage sun heat so as to render but little fire heat necessary. It is easy to make a strong fire; but many have greenhouses that do not require a large fire, but at the same time require one to act quickly; and in order that this may be the case, the hot-water apparatus should be so

arranged as to give a ready command of heat to affect the air of the house the same night, for at this time of the year artificial heat is seldom required in the day. Stop shoots where more branches are required to form handsome well-furnished plants. Train the young shoots so that the whole may exhibit regularity, and let this be subsequently maintained by checking over-luxuriance where symptoms of it are beginning to appear; and on the other hand, encourage the weaker branches by training them outwards towards the light, giving their extremities an upright direction. Attend to watering and shading when necessary, and it must be kept in mind that shading is most required in clear after dull weather. *Camellias* will now be getting out of bloom, and should be making their growth. Where the soil in the pots is exhausted shift now by all means, using dry turfy loam and peat. Give a little extra heat, and as fresh roots are made supply manure water. *Cinerarias.*—Attend to watering and shading in order to prolong the bloom. Sow for autumn and early winter-blooming. *Epacrises.*—Cut in early-flowering kinds, and place them in a warm house or close frame, syringing overhead till they break; when more fresh roots are made 2 inches long, repot in turfy peat and sand with good drainage.

CONSERVATORY.

Examine the state of the borders, and water them effectually. Spring water will be found warmer at the present season than that of rivers and open tanks, and it may be employed in preference, being nearer the temperature of the air of the house. But it would be still more preferable to use rain water, manure water, and warm water mixed, so as to equal the mean temperature of the air of the house when applied. The temperature should be 60° to 65° by day, and 50° by night. Arrange the plants in flower so as to produce the best effect. They should now be numerous. Acacias, Polygalas, Chorozemas, Pultenæas, Boronias, Leschenaultias, Coronillas, and Correas are highly ornamental, either for the greenhouse or conservatory.

PITS AND FRAMES.

These will be much occupied with bedding stock. Let it be carefully attended to as regards watering, and as much air should be given as the state of the weather will permit, in order to harden the plants for the open air. Many kinds of plants may be advantageously shifted on and kept growing to make larger plants before being turned out; for instance, *Pelargoniums*, the object being to cover the ground as soon as possible with a display of fine flowers. This is aimed at in two ways: some propagate a vast number of plants in small pots which can be kept in a limited space, and thus it can be afforded to plant the ground thickly; others adopt what we think the better plan, and shift the plants into 48's, thus using fewer but larger plants; but, in consequence of being larger, fewer plants are really necessary to ultimately cover the ground as well and even better than by the other mode, whilst the flowers become better developed, and the whole free from the disagreeable appearance of crowding. Forward tender and half-hardy annuals and biennials, such as Stocks, &c.

FORCING.

Pines.—Plants ripening-off their fruit should have a dry atmosphere, and a temperature of 80° of bottom heat, and a top heat of 84°, or by sun heat 90°, increasing at last to 95°. Succession plants should be kept growing in a moist heat, but give them sufficient air and space to prevent them from being drawn up weakly. Syringe them frequently. Plants that have been kept in pots all winter should now be looked over, and the strongest selected for planting out if that excellent system is adopted; or, if not, let them be shifted into larger pots, giving little water till they strike fresh root. *Vines.*—Attend to syringing, stopping, and regulating the shoots, and thinning the berries as before directed. Gradually increase the temperature as the berries increase in size; or it may be said, till the fruit is ripe. As regards temperature, let the motto be "Onward," without ever permitting one decided drawback. *Peaches and Nectarines.*—See that the borders, particularly of the earliest house, are sufficiently moist, for it is not well to have to supply water when the fruit is ripening; therefore, before that process commences, let the borders be put in a condition that the trees will not suffer till it is over. Take care of succession shoots, for which the lowest situated at the base of the bearing shoots ought to be reserved. *Figs.*—Syringe frequently, and see that the plants do not at any time get too dry at root. Keep a moist atmosphere, but when the fruit begins to ripen let it gradually become drier. Stop shoots so as to check the over-luxuriance of the trees and induce the formation of fruit-buds. *Cherries.*—When the fruit begins to colour, the temperature may be gradually raised to 65° at night, and 80° to 85° in the day with plenty of air and water till the fruit is ripening-off. *Strawberries.*—Clip-off the upper part of the scape, as before directed, when a sufficient number of fruits are set on the lower part; for the green ones that will never ripen are worse than useless, as they appropriate sap, which can never be elaborated into eatable substance in parts that are little else than rudimentary, and which in the Strawberry can only be formed slowly, however much heat be applied as a stimulus. Keep introducing fresh pots as fruit is gathered, for the spring is likely to be backward, and a supply from the open ground may, consequently, be late. But supposing the succession of those potted for forcing should be likely to run short, and the blank

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in supply would cause murmuring, what then is to be done? Under such circumstances we have seen good patches of rows taken up and placed in boxes, and many dishes of very good fruit have thus been furnished. *Melons and Cucumbers.*—Sow for succession, and use great diligence in stopping and regulating early and frequently, in order that but little privation of foliage may take place at any one time. *Gourds.*—Sow and pot off as soon as fit, also *Capsicums* and *Tomatoes*. *Kidney Beans.*—Sow for succession.

FRUIT GARDEN.

For this every spring is precarious, but this anomalous season is more than usually so. We may have some uncommonly fine days, but we ought not to be allured by such into a false security, and lay aside precautionary measures against cold; for the very fine days, though pleasant at the time, may only rarify the air around us rendering it light and easily swept to a distance by a draught of colder and heavier air, which may be close at hand. Moreover, several such warm days, more especially if they are accompanied with warm nights, render vegetation very susceptible of cold: therefore, a relapse of cold weather after warm is to be guarded against by every possible means in our power. A slight covering will often protect blossoms; but neglect this, and our hopes of a crop are blighted for the season.

KITCHEN GARDEN.

If the state of the weather and that of the ground, has prevented many of the operations recommended to be done last month, from being performed, no time should now be lost in bringing up all arrears. Sow Cardoons, Hamburgh Parsley for its roots, Onions, Leeks, Broccoli, Red Cabbage, Parsnips, Beans, Peas, and Kidney Beans in succession, Lettuces, not forgetting the White Paris Cos and Neapolitan, Mustard and Cress, Round Spinach, Turnips, &c., in succession; Beet from the middle to the end of the month; Celery in the beginning of the month for late crops; Radishes in succession. Sow Savory, Thyme, and other sweet herbs in light soil; Sow Salsafy in the end of the month. Endive should be raised in a heat of 75°, otherwise it is apt to run to seed. Earth-up Potatos, first well watering the ground, and as soon as the surface is dry add soil to form broad-shouldered ridges.

FLOWER GARDEN.

With the new year was introduced a memorable visitor who stayed only a short time, but has left many traces which will now have to be effaced as soon as possible. There are many things, such as Laurustinus and Sweet Bays, which are evidently killed to the ground, or, at all events, down to the snow-line; above this may be cleared away at once. If covered with good soil the stools, however, will send up numerous shoots that will become rooted plants, which may be useful for filling up shrubberies where required. The Pinus tribe is, however, different, and some of them are completely killed, while others will be stunted. How the Deodars will behave we shall see, but they seem likely to break out from the old wood Finish pruning Tea and China Roses and their hybrid varieties, where such are yet alive to require it; indeed all pruning should now be finished. Evergreens may be very successfully planted throughout this month, taking the precaution of thoroughly soaking the ground with water at the time, and syringing the foliage every night and early morning, shading from hot sun, and even by mats from cold dry winds, if such are prevalent. Prepare for planting out the various bedding plants; and we would again recommend the light straw mats used by the French for protecting. They can be made to keep out frost, wind, and rain, or so thin as only to mitigate the fierceness of the sun's rays, thus forming shelters more or less thick or thin to suit the requirements of plants under the varied circumstances to which in a season like the present they may be subjected.

FLORISTS' FLOWERS.

Auriculas.—Shade the frames with thin canvas during the heat of the day; and about the middle of the month, in order to prolong the blooming, remove to a cool situation facing the north. The plants being now growing, water rather freely. *Carnations and Picotees.*—Finish potting as early as possible. The pots should be raised 2 or 3 inches from the surface of the ground on strips of wood or on coarse cinders. Any spare plants may be planted out in well-prepared beds, which had best be elevated in case of a wet season, and for convenience in layering. Sparrows are fond of the points of the young shoots. The mischief will be prevented by running pieces of grey worsted along the row a few inches above the plants. *Dahlias.*—Propagation of these will be at its height. Grow the plants in gentle heat, and pot off as soon as rooted, and towards the end of the month they may be repotted into three or four-inch pots till planted out. It is now a good time to sow seeds, which should be done in brisk heat. *Fuchsias*—With rich soil, plenty of room, and a moist genial atmosphere, fine plants will be formed. Cuttings may still be put in for late-blooming plants. *Hollyhocks.*—Trench and well manure ground for planting out in the end of month. In the meantime if any are pot-bound give them a shift. Seedlings may be planted out at once. *Pansies.*—The small side shoots may be taken off for cuttings, in store pots, under glass, in a cool situation, for blooming in September. *Pinks.*—Protect from sparrows, as recommended for Carnations, &c. *Tulips.*—Protect from rain and hailstorms, and from frost, more especially if at any time they should happen to get wet.

Walter Lith 19 Hatton Garden.

Huyshe's Princess of Wales Pear.

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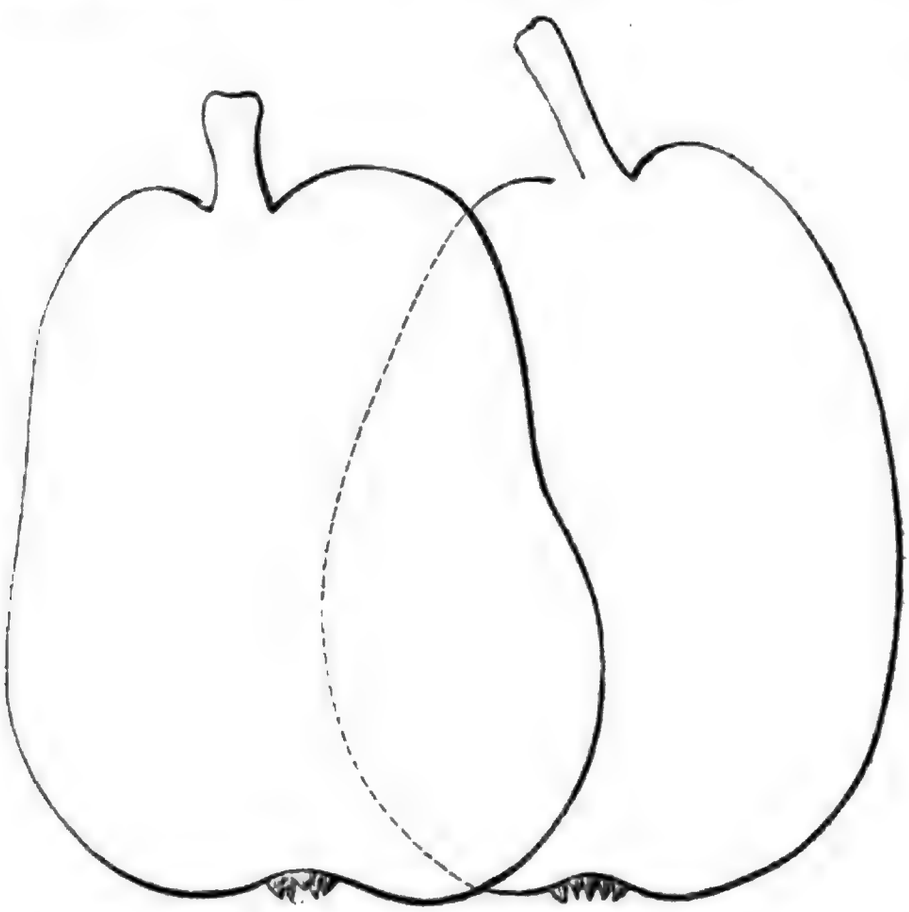
PRINCESS OF WALES PEAR.

WITH AN ILLUSTRATION.

Never since the time that Mr. T. A. Knight instituted his experiments in cross-breeding Pears, has so much success been attained in this direction as that what has fallen to the lot of Rev. John Huyshe, of Clysthydon, near Exeter. Mr. Knight's object was to obtain a race of hardy varieties possessing high flavour, and the variety he adopted as the basis on which to work was the old Swan's Egg—doubtless in its way a very estimable sort, but so closely did he adhere to this variety, that those he succeeded in raising from it, were in many instances mere repetitions of their parent, varying but slightly in form and flavour.

The materials that Mr. Huyshe worked with, were the general favourites, Marie Louise, and Gansel's Bergamot. About the year 1830 Mr. Huyshe fertilised the former with the pollen of the latter, and from the fruit so produced he obtained "three pips," which being sown, in due time resulted in the three varieties now known as Huyshe's Prince of Wales, Victoria, and Princess of Wales, the last of which forms the subject of our present illustration, from the skilful pencil of Mrs. Dix, and from fruit supplied by Mr. Huyshe himself.



It is our intention to furnish in the Florist and Pomologist, portraits of the other choice and valuable varieties which Mr. Huyshe has raised, and of which drawings have been made by the same accomplished artist. Among these is one known as *Prince Consort*, a Pear remarkable for its size

and flavour, and of which grafts and young trees have been distributed this season for the first time, Mr. Huyshe having with unusual generosity placed the distribution of this variety in the hands of the Council of the Royal Horticultural Society.

Princess of Wales is not one of the largest of these varieties, it being surpassed in this respect both by Prince of Wales and Prince Consort, yet it is not a small fruit, but one of good average size, and measuring fully 3 inches long by 2½ inches broad. Its shape is variable, as may be seen by the accompanying woodcuts in which one fruit is represented as rather more cylindrical than the other, and with "a waist," as Mr. Huyshe happily termed it. The skin is of a smooth lemon colour, mottled and traced all over with thin cinnamon-coloured russet, similar to that of Marie Louise. The eye is open with erect acute segments, and set in a rather shallow basin. The stalk is short and stout, and inserted in a deepish cavity. The flesh is of a deep yellow colour, smooth-grained, very melting and juicy, richly flavoured, and with a high aroma. The fruit is ripe in the end of November, and will keep well on till Christmas, so that it is not one of those numerous varieties which are in use in early autumn when so many other kinds are ripe, but comes in at a time when good Pears are becoming really scarce and valuable.

H.

THE EFFECTS OF THE FROST OF JANUARY, 1867.

Of the species of Abies, which comprise some very beautiful and valuable trees, I can report that all the most important are safe, although several, such as A. Morinda from the Himalayas, planted in 1832, and approaching 60 feet in height; A. Douglasii from California, of the same height; and A. Menziesii from California, 40 feet high, have been slightly injured in the foliage, which, although quite green, blew off the trees most abundantly during the prevalence of the high winds which occurred some time after the frost. It is singular, however, that in the case of Morinda and Douglasii, only the foliage formed in 1864 and 1865 has been killed, that of 1866 remaining perfectly uninjured, whilst Menziesii has lost only a small portion of its young green foliage. A. Brunoniana from Nepal is very much cut up; but all the others that we possess, such as A. Pinsapo from Spain, A. orientalis from Tauria and the Caucasus, A. elegans a subvariety of the Norway Spruce, A. Clanbrasiliana, which is, I believe, a sport from the common Spruce originating at Moira in Ireland, and of which there is a solid lump of foliage 8 feet in diameter and 6 feet high, and probably thirty years of age, are all uninjured. I mention their native country, because one cannot help when reviewing the subject, even in a casual way, being struck with the bearing which the native country has upon the hardiness of many of the subjects under consideration. Taking A. Brunoniana as an example, it is in every respect as regards growth, habit, and manner of coning, identical with the Hemlock Spruce of Canada, except that the foliage and cones are a trifle larger, and the leaves more silvery on the under side; and yet the Hemlock Spruce will bear uninjured a very much lower temperature than will suffice to kill Brunoniana.

I am sorry to say that the Cedrus Deodara is very much cut up, many of the trees being now entirely denuded of foliage, so as to resemble the deciduous Larch rather than the evergreen Cedar; but there is still great hope that they will eventually recover, as the buds are swelling fast, and

seem likely to break out quite as well as in the Larch. In this case, again, East-Indian parentage proclaims that we can never expect to thoroughly acclimatise anything from that region. Even many of the large Cedars of Lebanon at this place have been denuded of a great amount of their foliage, which was not, as in the case of the Deodar, killed, but blown off the trees in a green state. The Cedrus atlantica, or Mount Atlas Cedar, has also lost much of its foliage, although, neither that nor the Cedar of Lebanon is so much cut up as the Deodar, as they still retain their evergreen appearance, which many of the others do not.

The Cunninghamia lanceolata or sinensis, from China, is perfectly hardy at this place, and grows vigorously; and, although rather loose in its manner of growth, owing to its habit of throwing off the three-year-old branchlets, it is nevertheless very picturesque in appearance.

The Sequoia sempervirens or gigantea, from California, appears to be quite safe. This tree, called also the Bastard Cedar, grows to an enormous size in California, and does not appear to have received from planters that attention which it deserves. The rapidity of its growth, and the peculiar enlargement of its stem, are only equalled in the Wellingtonia. As an instance in illustration, it may be mentioned that in 1849 I struck a pan of cuttings from a small tree; one of these was selected and planted out in common trenched ground in 1851, and it is now upwards of 30 feet high, and the circumference of the stem at the base is 6 feet 4 inches, at 6 feet above the base 4 feet 4 inches, and it carries its size well upwards. It is not particular as to soil, but grows most rapidly, and seems most at home in damp stiff soil approaching to clay. In light dry soils the growth is not nearly so rapid.

Fitzroya patagonica is very much browned in the old foliage, but will apparently recover. It is at best but a scraggy-looking plant, more curious than beautiful, yet as a large tree it would probably be very picturesque.

The beautiful Libocedrus chilensis is very much cut up, but I hope will recover. In addition to the injury from frost, this tree appears to be peculiarly liable to the breaking out of the small side branches, an injury caused by the combined effects of snow and high winds. The foliage itself is very heavy in proportion to the size of the wood, and any little additional weight causes the branches to split away from the stem, and the wind tears them out.

The Cryptomeria japonica, with its varieties such as Lobbii and gracilis, have not suffered in the least, being not even browned, as they sometimes are in much less severe winters than the last. The largest plant of C. japonica at this place is upwards of 40 feet in height, and well-furnished. During the hot summer of 1865 the stem of this tree was split open vertically in several places, and although it is now closed by accumulated growth, the marks remain. A liability to do this would, I should think, materially damage the timber obtained from this tree.

Thujopsis borealis is quite hardy, and is a most desirable tree for ornamental planting, as it has a very elegant habit of growth, and is also a vigorous grower in kindly soil. The beautiful green of the foliage is, moreover, very striking.

The Juniper tribe affords some very valuable hardy plants. Amongst them the male plant of Juniperus chinensis ought to take a high rank, as it is perfectly hardy, and of a free-growing, compact, and elegant habit of growth. A large tree of this when in bloom in the spring is very bright and cheerful-looking, and contrasts well with plants having darker foliage. The variety

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of J. communis, called oblonga pendula by some, and caucasica by others, which comes from China and Japan, is thoroughly hardy, and is a most desirable plant to have even in a small collection, as from its drooping and elegant habit it is peculiarly well adapted for effect when planted on the borders of shrubberies, where it contrasts well both in colour and habit with evergreen and deciduous shrubs.

The Thujas generally have passed the ordeal unhurt. Among them Thuja Lobbii is worthy of most honourable mention, being likely to make a large tree. The growth is very rapid, with an elegant pyramidal shape, and a fine colour. A large specimen of Thuja aurea is quite safe. T. pendula, or, as Endlicher calls it, Biota pendula, is likewise quite hardy; the growth is slow, but it has a very elegant appearance where it flourishes.

Redleaf. JOHN COX.

TROPÆOLUM TRICOLORUM.

TWENTY years ago, this beautiful greenhouse climber was to be seen at the early summer exhibitions, but now it is seldom or never shown; and it is rarely that one meets with a well-grown specimen of it even in private collections—a circumstance which is not easily accounted for, as the plant is very readily increased, easily grown, very beautiful, and lasts a considerable time in flower. Its flowers show to great advantage under artificial light, which makes it invaluable for in-door decoration. I am rather partial to this pretty climber, and beg to offer a few remarks on its culture, in the hope that it may be again as extensively grown as its merits justly entitle it to be.

The tubers when in a dormant state should be kept in dry sand, and in a safe place where mice (which are very fond of them) cannot get to them. In general they begin to grow during the month of September. As soon as it is perceived that they are starting, they should be at once potted into pots of the size they are to flower in. Pots from 8 to 10 or 12 inches in diameter, according to the size of the tuber, will be sufficiently large. The pots should be well drained, and a little sphagnum should be placed over the potsherds to prevent the soil from getting amongst them; a little rotten dung placed on this will be found beneficial. They will grow in almost any kind of light soil, but the following compost answers well:—One-half turfy loam, one-fourth part fibrous peat, and one-fourth part rotten dung, well mixed together with a good sprinkling either of sand or bonedust, the latter being preferable. The compost should be in a proper state when used—neither too dry nor too wet, and should be pressed tolerably firm in the pots. The roots should be planted in the centre of the pots, leaving the tops just above the soil.

The trellis for training the plants to, should be placed in the pot at once, and made so fast to a wire below the pot-rim that it will not move; this is a matter of some importance, as, if the trellis is not made firm, the least movement of it would by a sudden jerk break off the young shoots from the crown. Some attention must also be paid to properly attaching the young shoots to the trellis. The kind of trellis is a mere matter of taste; I have seen a great variety used, but I like the balloon shape, or rather a modification of it, as well as any.

A few days after potting a gentle watering from a rose water-pot should be given to settle the soil nicely around the tubers. The plants will not then require much watering until they begin to root into the soil and grow freely, and then when water is given them it should be in sufficient quantity to go through the entire mass of soil. During the autumn and winter months

they should be kept in the warmest part of the greenhouse, where the temperature during the winter should not be less than 50° by day, and not below 45° at night.

As the days lengthen and they get more sun, towards spring they will grow rapidly, and will require almost daily attention in tying in the shoots; the plant should also be turned round every two or three days, especially when grown on balloon-shaped trellises, so that all may be well covered. Towards April their flowers will begin to expand; a little clear manure water will then be very beneficial to them two or three times a-week. By the early part of May they will begin to be pretty full of flowers, and should be removed to the conservatory, where they will continue in great beauty for several weeks.

As soon as the flowers begin to fade the plants should be removed to the warmest part of the greenhouse to mature their seeds properly. As the foliage and stems show signs of decay water must be gradually withheld; and when the stems are quite dead, the tubers must be taken out of the pots, and placed in dry sand until the following autumn. As seeds ripen freely, any quantity of plants can by this means be obtained. I have had them come up as freely as Peas. I find the seeds germinate best when the pots are on the hot-water pipes in a Pine-pit.

Stourton. M. Saul.

CRYPTOMERIA JAPONICA.

This is a very ornamental distinct-looking tree, where the plants happen to have assumed a good habit; but sometimes they make only a straggling naked growth, and have a poor and mean appearance. There are several trees here of different habits, and of heights varying from 20 to 80 feet, some very nicely shaped ornamental trees, and one in particular of noble aspect, branched to the earth's surface so thickly that the bole of the tree cannot be seen without putting the branches aside. This tree, unfortunately, a few years since had 9 feet of its head smashed off by a terrible south-east gale; but by tying its upper branches down, and loading them with stones, &c., it started the second year, a vigorous leader, which has since gone ahead in a most luxuriant manner, putting out its side branches as it proceeded so vigorously, that the tree has now almost grown into its natural pyramidal shape, with a bole of 4 feet in circumference, and a diameter of branches of from 26 to 28 feet. It has borne cones for years, and many fine plants of beautiful, close, thick habit have been raised; and even these latter have themselves produced cones.

The Cryptomeria is a plant that cones at an early age and very freely. The cones are about the size of a Morello Cherry, blunt, and rather globular in shape. The male catkins are formed in autumn, in great abundance, in the axils of the leaves. The cones first appear at the ends of the branches in the winter months, and are in full bloom in March and April. On a sunny windy day the pollen may be seen to fly about as if a dusty bag had been shaken. The cones grow very fast, and soon reach their mature size. They become ripe in September, and are full of seed, but they soon burst open and shed the seeds, which are small and flattish, of a dull brown colour. The male catkins when fully developed are yellow, about half the size and length of a good-sized oat corn.

Our experience here fully proves that by selecting the seed from well-

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shaped fine-habited trees, the plants raised from them will fully maintain this superior habit. It is therefore very desirable only to propagate from such as these.

Bicton. JAMES BARNES.

NATIVE SINGING BIRDS.

WE have received through the post an anonymous circular pleading in behalf of "our indigenous singing birds." In a postscript the sender remarks, "I hope you will help me in my endeavour to save our singing birds." Beautiful creatures! you have and always have had our sympathies, and bold indeed must be the hand that would venture to molest you in our domain. Your gay flutterings impart life; your joyous warblings music to the otherwise still though beautiful scenes of the shrubbery and flower garden. What is the country in spring time without birds? The carolling of the lark in the early morning, the charms of song rising continually throughout the day, and the whistling of the blackbird carried far into the "gloamin," are no mean sources of enjoyment to those who can appreciate the charms of a country life. More than this, it appears to us that birds have their right of inheritance, as we have ours; and while we would jealously guard our own—the fruits of our labour, we believe that we can do this without destroying theirs. In other words, that there is room for both of us in this wide, wide world.

Is it true, as is alleged, that our singing birds are diminishing in number, or are they merely changing their locality—quitting the immediate vicinity of large cities, where the craftsman is so rapidly destroying their means of shelter and food, to find in the distant woodlands and hedgerows a more natural and congenial home? The writer of the paper in question asserts that small birds are actually diminishing, falling a prey to the gunner, being shot in mere wantonness, principally by boys, for what in their lack of wisdom they call "sport." Sport, indeed! we do not envy the breast that can make sport out of the sufferings and death of even the meanest of God's creatures. To kill for food, to kill in self-defence is justifiable, but to kill for mere "sport" is, to our apprehension, most blameworthy; and while we would plead for the feathered songsters on the ground of their life, their beauty, and their melody, we think we can establish a strong case in their behalf on utilitarian grounds alone. Some years ago a mania took possession of the French farmers, and the destruction of birds was carried on with a cruel success. Myriads of insects immediately infested the country, which all the ingenuity of man was incapable of contending with, and equally strong efforts had to be resorted to, though with slow success, to rehabilitate the birds so ruthlessly destroyed. Corroborative of this we would point to the swarms of caterpillars in the hedgerows and gardens round London of late years, and ask, Is not this reasonably attributable to the diminution in the number of our small birds?

On the other hand, we know by bitter experience how vexatious it is to have our fruits injured or destroyed before fit for gathering—to have our seed-beds scratched over immediately that the seed is carefully and laboriously committed to the ground, or the springing germ destroyed apparently in mere wantonness. And to this we are certainly in no humour to submit. But is there no remedy but death to the destroyer? Cannot we devise means of shutting off the depredators by means of netting, thereby *effectually*

preserving the crops, which is rarely done by the most uncompromising plans of bird-killing? Cannot we by such means direct the busy energy of birds, so as to avoid the harm, and secure a greater blessing? According to our view, there is a waste of thought and labour in first devising means to destroy the birds, and then having to provide something in the place of birds to destroy the insects. Is it not less trouble, and sounder economy, to protect our crops from the birds, and thus compel the latter to search closer for insects as a means of livelihood?

In our judgment at least, it is about as just to kill birds for destroying or stealing a few seeds and fruit, as it would be to hang a man for misdemeanour or petty larceny. If, as in some places is the case, birds destroy much fruit, let us remember that they also destroy many insects, for the fruit season is short, the insect season long. It is well authenticated that a blackbird or a thrush will destroy twenty slugs or snails in a day, and we have often been astonished when watching the proceedings of the smaller insectivorous birds by a computation of the quantity of insects a nest of young finches will consume in the course of a day. Thus, we venture to hope that we have shown that there is no just ground on which to destroy birds from any point of view—utilitarian, humanitarian, or æsthetic; and in our most severely combative moods we should remember that—

> "He prayeth best who loveth best
> All things both great and small;
> For the dear God who loveth us,
> He made and loveth all."

W. P.

KIDNEY BEANS IN WINTER.

I do not pretend to have anything new to say about the winter culture of Kidney Beans, but simply wish to record the practice which I have adopted, and which I find to answer the purpose remarkably well. Simple though the winter culture of this vegetable may appear to be, it has often baffled our best gardeners, and I have myself lived at great places where immense quantities were grown, but where rarely more than a Bean or two to a pot could be obtained. The plants generally went on well up to the flowering point, and then all was over. One man after another was put to manage them, but still the Beans were a failure. The pots had been badly drained: the supply of water had been either too much or too little: or the pit at some time or other had been allowed to get either too hot or too cold—these were the stormy arguments with which the young men were assailed; yet during all the time I was a graduate at that despotic school of gardening, Bean-culture never grew into a success. Similar results attended the culture of winter Cucumbers at the same place. Accidental good management occasionally brought a few Beans, and sometimes Cucumbers, but these were exceptional cases.

My Bean-pit is 80 feet long, and 12 feet wide, having a bed in front 4 feet wide, which contains loamy soil to the depth of about 12 inches. In this bed the Beans are planted in transverse rows, at, 12 inches apart. Underneath the bed is a heated chamber, which may or may not be filled with water. There are three rows of four-inch pipes along the front, by means of which, together with the hot air issuing from the chamber, a temperature of from 60° to 65° by night, and during the day with the aid of

a little sun heat, of from 70° to 75°, is maintained. During hard weather the temperature at night often falls as low as 55° or 50°.

The Kidney Bean when comfortable at the root, will stand any reasonable amount of heat or cold. I find them to be most forward on the side of the bed next to the hot-water pipes, delighting in the heat, which is there found to be the greatest; and this alone gives a fair succession of Beans, even from a plantation which has all been sown at the same time. The Kidney Bean is not very particular as to the kind of earth in which it is grown. I have had tolerable success with almost all sorts of soils, but that which I use generally is of a loamy texture—often old Melon soil, or the surface of an old Mushroom-bed, mixed with a little fresh sandy loam.

Perhaps the best key to the successful culture of the French Bean is to have a thorough knowledge when to give water. At the time of planting there ought to be sufficient moisture in the earth to carry them on until almost showing flower; at this stage, if the earth really appears dry, they should get sufficient water to carry them over the flowering period; and when all are well set they may have another, which will in most cases be sufficient to last until the Beans are ready to gather. Abstain from giving water under any consideration while the Beans are in flower, and prefer rather that they should appear to suffer from drought, than administer water injudiciously at this stage.

My own practice is to exercise a close watchfulness as to watering during the above stages, and I believe it is to this that I may attribute my success My principal crops, as I have stated above, are planted out in the bed in successional lots; and to fill up any casual gap which may occur auxiliary lots are brought forward in pots. I am not an advocate for the too free use of the syringe on the plants, and trust more to maintaining a moist atmosphere by keeping the evaporating-troughs filled, and by wetting other surfaces.

During four months of the past winter, and with weather at times certainly not the most propitious for either Bean or other forcing, I have gathered 10,000 Beans, averaging about six hundred weekly—nothing very prodigious either, but showing an amount of success considerably removed from failure. The sorts I grow are Fulmer's Early Forcing, Wilmot's, Negro, and Mohawk. The latter I observed dwarf and prolific in the open ground last summer, and I have since tried it successfully for forcing.

Combe Abbey Gardens. WM. MILLER.

THE MORTALITY AMONG THE ROSES.

IN all directions rosarians have been pouring forth lamentations over their lost favourites; and though the experience has been dearly purchased, it has the merit of being eminently practical and useful. The various reports that have been published from all parts of the country seem to show that the greatest losses have been sustained amongst standard Roses, and next amongst dwarfs on the Manetti, whilst those on their own roots have suffered least. The standard Rose, from its height, always presents an awkward subject to protect during the winter months; and probably, as one consequence of the great thinning-out they have recently had, Rose trees in that form will in future be less grown than hitherto. But Roses on the much-vaunted Manetti have not escaped, notwithstanding that they present no difficulty

in the way of giving protection, for all dwarf Roses can be readily protected, although rendered unsightly, by fir-boughs, fern, litter, and such like materials. It is more than probable, however, that, emboldened by the milder winters that have prevailed since 1860, nine-tenths of the growers of Roses did not give that protection which has now been proved to be required, and a wholesale slaughter has been the consequence. Budded Roses, whether on the Manetti or any other dwarf stock, always stand a worse chance of recovery than those on their own roots; for if the plant is killed back to where the bud was inserted, it is gone, while those on their own roots, though killed down to the ground line, will break up again and recover themselves during the next season.

There is one method of treating Roses on their own roots, that has been the means of saving to me, perfectly uninjured from the hard weather, the whole of a very fine growth of last season, from a considerable number planted in a long row; and that is by pegging down. Some time since when I wrote upon this point, Mr. Perry advised the pegging-down to be done in the spring. I have, however, not yet followed his advice, although his reason for so advising is very plausible—namely, that by getting the top shoots to break first, the blooming season would be prolonged; and I am doubly thankful that I have not done so this year. I prefer to peg down early in December, as no portion of the plant is then more than from 3 to 4 inches from the ground, and protection becomes both easy and simple. I trusted to the snow, and was not deceived, for during the period of the severest frost the shoots were all well covered by that excellent and natural protector.

Let no one imagine from this that other things have not with me suffered from frost. It was severe enough to kill to the ground Laurestines of fifteen-years growth, and all the Sweet Bays on the place; and also to denude of their foliage a large portion of the Rhododendrons. Having but few standard Roses, I lost but few, whilst those on the Manetti suffered severely, though the roots were well protected with short manure; but, like most others, I gave the heads no shelter, and have reaped the results.

I would strongly recommend the desirability of getting Roses on their own roots, and pegging them down. The trade does not favour their propagation in that way; but after my experience of growing them on their own roots and on the Manetti, I would rather give double the price to secure the former. Apologists for the Manetti say that its only fault is that it is apt to send up suckers from the roots. Now let it be remembered that, unlike the briar, which sends up its suckers usually at some distance from the stem, and is easily recognised, the Manetti throws its suckers up close home, and from the similarity of its foliage to that of many of the Roses that are worked upon it, the robber shoots are not always easily discernible. Thus thousands of Roses have been fairly eaten up by their unnatural parents, and many growers have been disgusted at their want of success. What is death to the Rose budded on the Manetti, is, however, life to that on its own roots. The sucker is the natural mode of propagation, and it is the strong robust growth thrown up every summer from beneath the soil, and from the base of the plant, that supplies the wood for pegging down each succeeding winter. Early in December I pull up all the old pegs and take out the weakest growth of the previous year, lightly forking over and clearing the soil, and giving a top-dressing; then with a fresh supply of pegs 9 to 10 inches long I bring down all the remaining wood as close to the ground as possible, where it is easily protected, if not covered by the snow. In the

spring all the shoots will break alike from the base to the top, and not as it would if left upright—a bud or two at the top, and all the rest bare. I have now great promise of an abundant bloom from the plants early in the season; and the before-mentioned strong growths invariably produce a good supply of fine blooms in the autumn.

Maybush. A. D.

EUONYMUS JAPONICUS AND ITS VARIETIES.

Dr. Regel has given in a recent number of his "Gartenflora" (1866, 260), a very interesting summary of the forms of this handsome evergreen shrub which have been introduced to our gardens from those of Japan. These he arranges in three groups, of which the two first include forms which are erect-growing and tree-like, and the third others which are slender and prostrate, and provided with roots by which they cling to walls and tree-stems like Ivy, or become fixed to the ground as they grow. These latter, forming the Euonymus radicans group, are, according to the observations of M. Maximowicz, but the young or barren state of the plants, as they have been observed to produce ultimately robust upright shoots similar to those of the other groups. The growth is, in fact, described as analogous to the sterile condition of the common Ivy, whose fruitful branches, it is well known, bear a different form of leaf and a distinct aspect, which they retain when propagated as separate plants. The following are the forms described by Dr. Regel, all handsome and desirable evergreen shrubs, and so nearly hardy with us, that they seldom suffer material injury from the severity of our winters:—

Varieties of slightly branched upright habit; leaves 1 *to* 2 *inches long:—*

1. *Euonymus japonicus*, Thunberg.—This has long elliptical leaves, which as well as their stalks are green.

2. *E. japonicus argenteo-variegatus.*—In this the branches are greenish, and the leaves oval-elliptical, with a silver-coloured border.

3. *E. japonicus aureo-variegatus.*—This has the branches golden yellow, and the leaves of a longish oval, coloured in the centre and towards the base with golden yellow, which hue extends also to the leafstalk. These three are forms which have long been known in our gardens.

4. *E. japonicus crispus.*—The branches in this form are of a greenish white, and the leaves of a longish oval form, crispy, bordered and dashed with silvery white.

5. *E. japonicus ovatus.*—In this the branches are golden yellow, and the leaves dark green, marked from the centre towards the base with golden yellow. It was introduced by M. Maximowicz to the Botanic Garden of St. Petersburgh under the name of E. j. foliis ovatis luteo-variegatis, and was received from M. Makoy and from the English gardens as E. j. foliis ovatis aureo-variegatis. It is one of the most beautiful of the varieties known.

6. *E. japonicus sulphureo-variegatus.*—The branches of this are green, and the leaves oval-lanceolate, broadly margined and dashed with sulphur yellow. It was received as the E. j. striatus from M. Makoy, and as E. j. foliis sulphureo-marginatis from M. Van Houtte.

Variety with the habit of the former group, but with long (3-*inch*) *leaves:—*

7. *E. japonicus macrophyllus*, Siebold.—This fine form has the branches green, and the leaves also green, very large, and standing opposed in threes.

Varieties with slender rooting stems, a low bushy habit, and small leaves:—

8. *E. japonicus gracilis.*—The branches in this form are of a whitish green, and the leaves elliptical, bordered with silvery white. It is the E. radicans foliis argenteo-variegatis of Siebold.

9. *E. japonicus radicans.*—The branches are whitish green; the leaves roundish oval, bordered with white and rosy red. It is the E. radicans roseo-marginatus of M. Makoy.

10. *E. japonicus tricolor.*—In this the branches are green, and the leaves elliptical oval, bordered and dappled with silvery white, yellow, and light green. It is the E. tricolor of M. Makoy; the E. radicans foliis aureo-pictis of M. Van Houtte; and the E. radicans pictus of Siebold and others.

11. *E. japonicus reticulatus.*—The branches are in this form green, and the leaves of a longish oval outline, green, marked with white veins. It is the E. gracilis of Siebold.

12. *E. japonicus radicans viridis.*—This has oval-elliptical green leaves. It is the E. radicans of Siebold.

These evergreen forms of Euonymus are of the easiest culture, requiring special attention only in two points—namely, to cut or pinch out the ends of the leading shoots in those of erect growth, so as to induce a more bushy habit; and to examine the variegated forms from time to time, for the purpose of cutting away any green-leaved shoots, which if produced, are by their luxuriant growth, apt to disfigure the plant, and if neglected soon result in the degeneration of the variety.

M.

SEDUM CARNEUM VARIEGATUM.

Mr. Fish has very justly mentioned the Sedums (see p. 63), as being well suited for basket work. Permit me to draw the attention of those of your readers who are interested in the cultivation of basket plants, to a very charming plant of this family, well suited for cool greenhouse or conservatory decoration—namely, Sedum carneum variegatum, which as a foliage plant has no equal for such a situation. It was introduced from Japan not very long ago; it is a very free grower, though it does not impoverish the soil in any perceptible degree; and besides it is densely clothed with neat and perpetual foliage. The leaves, which are more or less narrow and elongated, are so deeply variegated, as to have at least two-thirds of their surface of a light cream colour, the main stalks being tinted throughout with a bright pleasing tint of rose colour.

The habit of this plant when grown in a basket is peculiar, as when once in process of elongation it has grown over the outer edges of the basket, it falls abruptly down as if inert, and with its increasing length produces a plentiful supply of side shoots, which push forth from the drooping main stalks, and in seeming antagonism, grow as abruptly and perpendicularly upright as the others grow directly downward; this gives to the plant a most peculiar and elegant appearance. The variety, which has yellow flowers, not very freely produced, is perfectly hardy, and propagates with extraordinary facility. Its complete hardihood recommends it as being well adapted to decorate the humblest form of structure in the possession of any amateur.

Digswell. William Earley.

NEW GARDEN PLANTS.

In the course of some previous remarks on New Plants, it was mentioned that we should shortly refer to one or two interesting species of Hydrangea. The ornamental capabilities of H. Hortensia and H. japonica are well known, but these by no means exhaust the floral beauty with which the Hydrangea family is capable of embellishing our gardens, as some recent acquisitions from Japan testify. One of these, shown on a reduced scale in the accompanying sketch (see next page), is the *Hydrangea stellata prolifera*, a

double or proliferous-flowered state of the H. stellata of Siebold and Zuccarini, and of which the separate flower is represented of about the natural size. This novelty was introduced to European gardens by M. Maximowicz, and flowered last June in the Botanic Garden of St. Petersburg, where it is regarded as a worthy rival of the old Hortensia. Its habit is shrubby; its leaves are ovate oblong, acuminate, and serrated; and its radiate flowers, which grow in very large terminal globose cymes, are mostly sterile and proliferous, producing several smaller flowers of a similar kind in the centre of

each, these opening of a yellowish green, and changing to rose colour. The inflorescence thus becomes a dense head of double star-shaped sterile rosy flowers, and must be of a very ornamental character. Dr. Regel, who gives a good coloured figure in his "Gartenflora" (t. 521), states that the plants require the same treatment as the common Hydrangea. It is not only an ornamental plant, but remarkably distinct and novel in aspect.

Among the novelties recently figured occurs *Dictyopsis Thunbergii* (Bot. Mag., t. 5638), a Smilaceous plant from South Africa, and forming a remarkably graceful leafy climber adapted for greenhouse culture. Its dark green shining leaves are ovate acuminate, with many parallel nerves connected by cross nerves; and the small white flowers are drooping, and grow in branched leafy panicles at the end of the branches.

Of stove plants may be mentioned *Tinnea æthiopica* (Bot. Mag., t. 5637),

a shrubby Labiate from Central Africa, forming a hoary twiggy bush, 4 to 6 feet high, clothed with small ovate entire leaves, and flowering copiously from their upper axils. The two-lipped flowers are remarkable for their dark maroon purple colour, and their delicious violet-like perfume. It was raised from seeds sent by Mdlle. Tinné, and was first shown at the International Exhibition of 1866. During the winter and spring, it has flowered at Kew; also with Mr. Williams in a warm greenhouse. Another Kew plant deserving of notice is *Dombeya Mastersii* (Bot. Mag., t. 5689), a Sterculiaceous stove shrub, which flowered for the first time last January, though it has long been cultivated. The plant has cordate-ovate acuminate leaves, and corymbose heads of perfumed white flowers. The beautiful *Saccolabium giganteum* (Bot. Mag., t. 5635), one of the choicest of Orchids, and nearly related to the charming S. violaceum, flowered in great perfection last autumn with Messrs. Veitch & Sons, who have introduced plants from Rangoon. The flowers, which are white spotted with violet, and most powerfully and deliciously scented, continued in beauty "for nearly a quarter of a year." It has thick leathery bilobed leaves, and long dense racemes of flowers, of which the sepals and petals are white with a few lilac dots, and the lip is three-parted at the top, and there marked with a broad prominent blotch of deep violet. It is one of the choicest of recent acquisitions among Orchids.

A very pretty figure of *Fittonia argyroneura* occurs in M. Van Houtte's work (Flore, t. 1664). The leaves of this novelty (which is a congener of the plant known as Gymnostachyum Verschaffeltii, and of which a brighter-coloured form has since been called in gardens *G. Pearcei*), are broadly ovate with a cordate base, and of a bright green, having the principal and secondary veins traced out with pure white—a very elegant stove herb. The yellowish variety of *Iresine Herbstii* called *aureo-reticulata* (Floral Mag., t. 333), differs from the type in having the leaves green instead of red, and in the secondary veins being confusedly marked out with creamy white blotches, the stalks and main ribs being rosy red as in the original form, and the creamy hue extending along the sides of the primary veins. It is distinct, and is said to be constant, but lacks the rich colouring evident in the original form when that is seen at its best. It remains to be ascertained whether it will prove more generally acceptable as a summer bedder.

M.

ON THE CULTIVATION OF THE KALOSANTHES.

I PURPOSE, in the following notes, to treat more especially of those varieties of the Kalosanthes which are commonly known under the synonyme of Crassula coccinea. Few, if any, evergreen plants introduced from the Cape of Good Hope repay careful and attentive culture better than these; independently of which, they combine with an originality of form, that contrasts most favourably with other greenhouse plants, and much brilliancy of colour, a degree of facility in cultivation second to none. I will commence from the beginning of April, and sketch out the subsequent treatment necessary to insure success.

Young plants in a thriving state selected at that season for the purpose of being grown into fine specimens, should be pinched back so as not to allow them to flower during the following summer. They are to be kept well pinched in, and near the glass, until the next July twelvemonths. When

they are pinched back, which should be done so that the bases for the next divisional shoots should not be left too long, it will be necessary to remove four or five of the leaves nearest the apex, which will induce the various shoots to break far more readily than if the leaves are left on. If kept moderately dry, and exposed to every ray of sun, the plants will have formed moderately firm shoots by the second week in April, when it will be necessary to give them a shift into a compost formed of two parts good yellow fibrous loam, two of silver sand and potsherds broken very small, and one of good brown peat, all chopped well up together and thoroughly amalgamated. In potting add fresh soil to the roots in lieu of the impoverished particles which surround them, keeping in view at all times the desirability rather of growing them in as small-sized pots as possible, consistent with the size of the plants, than of giving large shifts. Pot them very firmly, and give them such a soaking of water as will thoroughly percolate every part of the ball. By about the middle of June it will be necessary to pinch them back again, for the double purpose of keeping them from showing flower in the succeeding month, and to induce the formation of well-matured young shoots to stand the following winter. Remove a few of the upper leaves after this pinching also, and keep them well up to the glass and freely exposed to the air, with a moderate supply of water, until the last week in July, when they should cease growing; and by being placed in the full sun should be thoroughly ripened to stand the winter.

As the winter treatment of plants of all sizes varies little from the above, we may leave these at this stage, and return to such plants or specimens as it may be desired to flower this season. Nothing enhances the beauty of the larger specimens more than a decisive pinching-back of all young shoots at any time between the middle of February and the end of the first week in March. Early in April give all the plants requiring it, a shift into a moderate-sized pot. The directions given above apply equally to these. When potted, place them in a light, airy situation in a temperature averaging 75° in sunny weather, bearing in mind that they should upon no occasion fall below a minimum of 60° by day, whilst the average of temperature best suited to them by night will be from 52° to 54°. Here they may continue to grow, fully exposed to the sun, until about the last week in April, by which time the sun, having gained much power, should not be permitted to reach them without a slight modification of its more direct rays at or about meridian, otherwise it may scorch or bronze the leaves so as to derange their functions, and destroy that beautiful green which by contrast so enhances the brilliancy of the flowers. This brings me to the *rationale* of success in growing them. They like sun and heat in plenitude whilst freely growing, with, however, abundance of air, which they should feel directly, without any attendant decrease in the temperature occasioned by draughts and the like. So treated they will have made a nice growth by the last week in April, having the pots well filled with roots, under which circumstances a slight amount of manure water will be of benefit to them occasionally during the month of May. By the last week in April it will be necessary to remove them into a cooler position with free exposure to the sun, and a yet more free exposure to air. A warm greenhouse or roomy pit, in which they will perfect a further growth preparatory to flowering in July, will suit them well. When once they show symptoms of flowering keep them constantly close to the glass, and slightly increase the dose of manure water, always, however, using it in a thoroughly clear state. Stake

them with great care, pointing the stakes finely, that the roots may not receive injury by their being forced into the balls.

When the plants have done flowering, which, in most cases, will be by the first week in September at the latest, it will be necessary to cut them down, so as to form a basis for next year's blooming. Avoid cutting them too severely: the younger the wood chosen, upon which young growths are to be formed, the better. Keep them rather dry for a time, and until they have made shoots an inch or so long, when it will be necessary to pot them. This is done by reducing the ball as much as possible without undue injury to the roots, and potting into the same soil as advised above, with the addition, however, of rather more silver sand and minute pieces of broken pots. They will now require pushing on in moderate warmth, for the purpose of re-establishing them in the fresh pots, the better to stand through the winter. Cuttings should be made from the prunings, removing three or four pairs of leaves from near the base before inserting them into an open, gritty compost. If plunged in a moderate bottom heat they will root freely. Do not water them for at least a week after they are put in. Keep all in the warm, dry corner of an intermediate-house during the winter, in positions where air may be given upon all favourable occasions. Be careful not to make the balls too wet during the duller winter months, and to guard them from drips or any other matters likely to cause damp, or to disturb a thorough season of rest. Should the cuttings root freely it may be possible in fine open autumns to advance them a stage by pinching them back, causing them to break, and maturing the growth afterwards in time for a winter's rest. One fact should always be borne in mind, that these plants are never better than when flowered only biennially, and upon a constant succession of young shoots.

Digswell. WILLIAM EARLEY.

BEARD'S PATENT GLASS HOUSES.

THE abolition of the excise duty on glass and the Great Exhibition of 1851 had each a powerful indirect influence on horticulture. The former rendered glass cheap and immensely stimulated production, while the palace in Hyde Park proved its architectural capabilities, and the facility with which art could render it subservient to the production of the beautiful. Probably full justice has never been done to the horticultural importance of these two events. They may be said to have made glass houses, which had mostly been the expensive luxuries of the few, one of the commonest and cheapest pleasures of the many. Hence we observe them springing up in all directions, till it is now no utopian fancy to expect to see curates' vineries adorning cottagers' gardens, and tiny conservatories embellishing the houses of our mechanics. But while the cheapening of glass has thus stimulated the manufacture of glass houses, the very magnitude of the demand has scarcely afforded the necessary leisure for the discovery or application of new or improved modes of using it. Hence whilst the quality of the glass has improved, and its size been indefinitely enlarged, we go on converting it into houses in very much the same manner as before. The result is frequently discouraging. Arrangements that might answer pretty well for covering a few square yards, are hardly adapted for enclosing an acre; and working expenses that were scarcely felt by the upper classes, can hardly be borne by those who now either have or wish to

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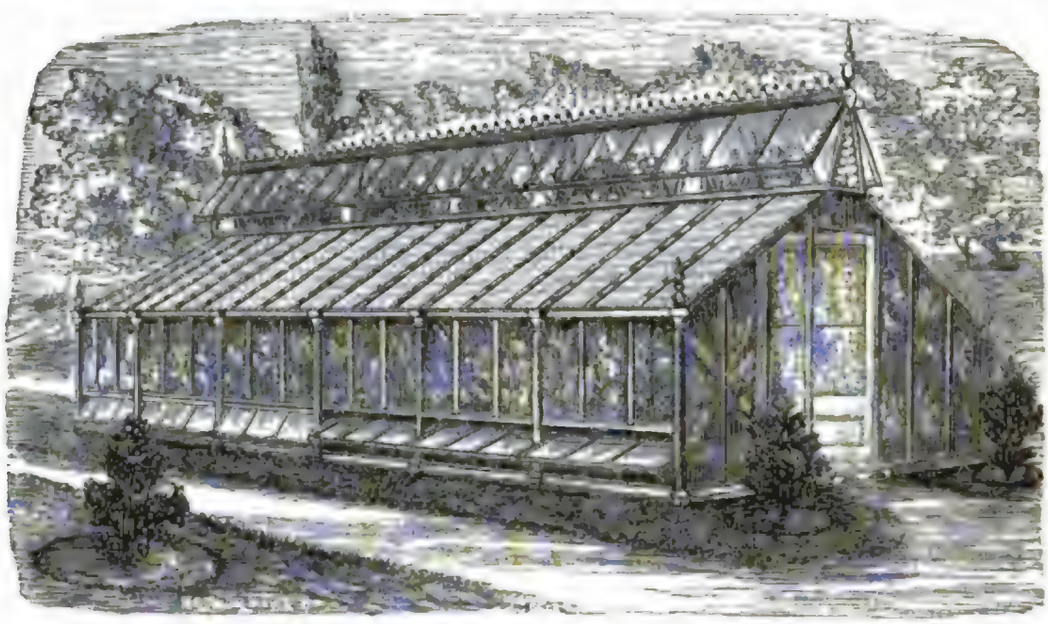
have glass houses. Many houses cheap at first cost, become terribly dear in the long run.

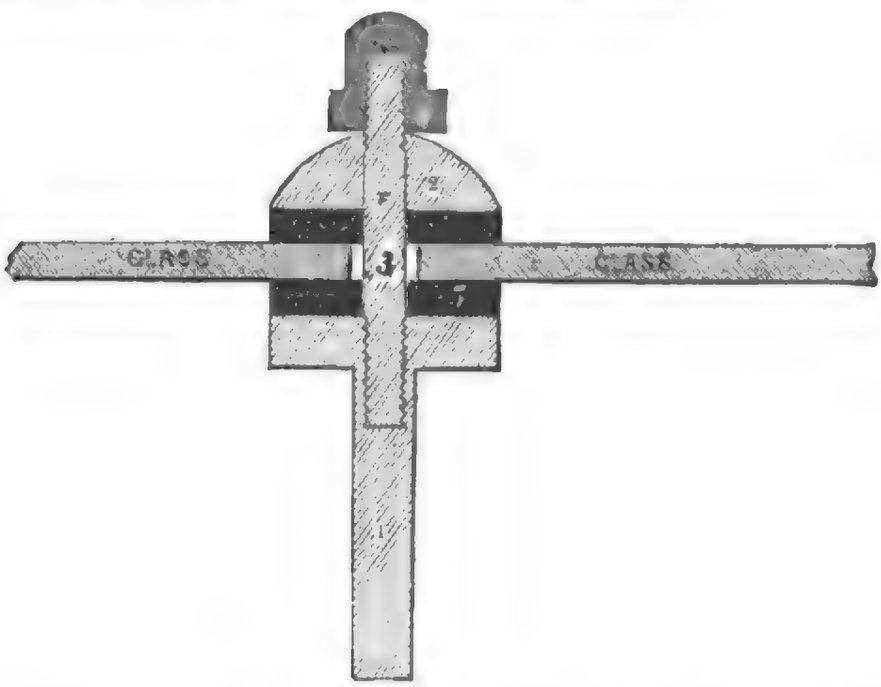
In nothing is it of more importance to draw a clear distinction between absolute and fictitious cheapness than in glass houses. A commonplace wooden house will eat its top off for repairs in ten or twelve years, for within that period a sum amounting to its first cost will have been expended on putty, paint, wood, and glass. Of course the better the materials used the less will be expended on repairs, and *vice versâ*. Sap wood left on the deal; putty made of wet whitening or lamp black, and worthless oil, and used new; thin twisted glass; and cheap white lead, are so many taxes laid on fictitious cheapness, yielding in the end a full crop of annoyance, and an absolute price of frightful proportions. Even with the best materials a heavy source of expense originates in the varied degrees of durability of the substances employed. Glass, putty, wood, and paint being all combined to form one structure, the time it will remain perfect without expensive renovations must be measured by the durability of its most perishable parts. Hence the importance of making all the materials employed approximate to the most durable constituent. Glass being well nigh imperishable, let it be combined with equally durable substances, and one of the most troublesome horticultural problems of the day is solved.



The distinguishing feature of Beard's patent houses is, that they may be termed irreparable in the sense of never needing repairs. The whole of the substances employed are most durable, presenting an unbroken surface of imperishable iron and glass to both the external and internal atmosphere. Paint is superseded by a hard, smooth, durable enamel. Instead of putty carefully prepared slips of asphalted felt, which can be placed or removed in the twinkling of an eye, are used. All the other parts are either iron or glass, and the tooth of time must become sharper than it is before it can make any sensible impression on either of these, protected as the former is by its coat of enamel.

These houses each rest upon an iron wall-plate, that may either be elevated on a wall or placed on a smooth solid basis of concrete. The water-troughing constitutes the roof-plate. The roof dips into as well as rests on this plate, and consequently removes the condensed water from the internal surface of the glass, as well as the rain from the outside. The

upright supporting pillars are all hollow tubes, which can be stopped up at pleasure, or used for the conduction of the rain water into tanks either outside or inside the house. Each house is also provided with a complete ventilating apparatus before it leaves the works. This forms the subject of a second patent, and is rapid, easily worked, and efficient. Its chief merit consists in a skilful adaptation of the endless screw to bear the weight of the ventilators and lighten the labour of lifting them. The air is also admitted at the base of the house, and discharged at the highest point, as shown in the accompanying figure. In this house the top ventilators open on both sides. In cold weather one series of the arms that connect the ventilator with the motive bar could readily be detached, and only the warmest side used. Or one side could be permanently fixed in houses erected for stove plants or early forcing. The ventilator is pitched at a different angle to that of the house itself, to enable it to be opened if necessary in wet weather without admitting the rain. A similar arrangement of a travelling horizontal bar, with its connecting arms, is used to open the front ventilators, and the system can readily be applied to any description of building.



The accompanying woodcut represents a full-sized section of the rib or bar which forms the basis of the invention. The first point about this bar is that it is T-shaped, thus affording a maximum of strength with a minimum of shade. The next is the smallness of the scantling, so as not to obscure the light. It is made of three-quarter iron, 1 inch wide, and 1¼ inch deep. With skilful bracing this is found to be sufficient for all ordinary houses. Another point is the absence of rebates. The top of the bar is quite level and smooth. Along its centre, at intervals of 30 inches, small screw-holes are formed. Into these a small bolt is screwed, about three-quarter-inch deep. 1 shows the bar with the bolt (3) inserted, 2 is a three-quarter covering bar, and 4 a small cap-nut, made of hard white metal which cannot corrode. These parts complete the metallic portion of the bar.

The most important part has now to be noticed. On each side of the glass a dark space, marked 5, will be observed. This is a strip of asphalted felt of the best quality. It forms an elastic bedding for the glass, and separates it at all points from contact with the iron. This is of great importance. Iron is not only an active conductor of heat, but is sensibly altered in bulk by sudden changes of temperature. It expands with heat, and contracts with cold: hence, if it touched the glass at any point it would probably break it; in fact, it does break it extensively on many metallic houses. The intervention of the felt, and the small space left between the two squares of glass as they lie side by side on the top of the bar, allow of sufficient elasticity in these houses to enable them to endure all changes of temperature without breakage of glass. The felt and glass meeting on the top of the rafter perform another almost equally important and useful function—they moderate extremes of temperature in these houses. Such metallic roof-bars are probably about as cool and as warm as wooden ones. The felt and glass break the currents of caloric passing through, and insulate the two portions of the bar from each other. The strength and durability of the fixing power will be obvious. It is composed wholly of iron, or other

metal; the felt is simply an elastic padding, and protected as it is at all points except the thin edge from the weather, it will probably last good for twenty or thirty years.

The glass used is large—30 inches by 20, and weighs about 28 oz. to the foot. On steep-pitched roofs it can be laid on end-to-end without danger of drip. At lower angles than 40° it will be safer to overlap. The glazing is equally simple on either method. When the glass is lapped the covering bars are made the same length as the squares. If it is unlapped they may cover two or three. Whichever mode is adopted, nothing can be simpler than the replacement of a square that may have become broken by accident. Only two or three small nuts have to be unscrewed, a length of bar lifted off, the glass laid on, the bar replaced, and the nuts screwed down again; the whole process occupying less time than the reading of these lines.

The erection of these houses is equally simple and rapid. They might almost arrive in a bundle and crate in the morning, and be furnished with growing plants before night. Whilst the most durable houses that have yet been built, they are also the most portable. This and their completeness in themselves render them valuable to tenants. They could be moved as readily as a library or a cellar of wine, with less trouble and interruption to their legitimate functions. The enamelling is also another valuable characteristic of these houses. Just as the felt supersedes putty, so does the enamel promise utterly to abolish the worry, expense, and disagreeable smell of common paint. It is baked on at a high temperature, a sort of flux being thus formed with the metal and the lead, so that the one seems inseparable from the other, and a smooth, hard surface is formed, which will easily wash clean, and promises to endure for years.

Having thus pointed out the most obvious structural merits of these houses, and shown how they do away with the necessity for repairs, while combining the rare merits of strength, durability, cheapness, elegance, and portability, I will, with your permission, hereafter advert to their high cultural efficiency.

Hardwicke House. D. T. Fish.

THE LEEK.

The Leek is considered to be a hardy biennial, but, like others of its tribe, when not disturbed it forms tufts and survives many years. I have a Leek of the Musselburgh variety, growing under a wall in a south aspect, which has annually produced seed for upwards of twenty years. There are several varieties of Leeks, but the one above-named is perhaps the best.

It seems doubtful when the Leek was first introduced into this country. Some say it came from Switzerland in 1562, others that it was known here only in 1797. This must be wrong, for Shakespere, it is well known, mentions the Leek, and Tusser says that Leeks were cultivated here in his day; while Worlidge, who wrote in 1668, speaks of having seen Leeks, Onions, and Garlic growing in Wales. And if the plant be not indigenous to Wales, like some of its family, the traditionary account of the Leek being the badge of the Welsh, shows that it was known to them at a very early period. It may be further stated that the Leek is mentioned in a Jacobite song, written about the time that George I. came to this country.

I need hardly observe that the Welsh are very fond of Leeks, and grow them to great perfection. Some are of opinion that their climate suits Leeks better than ours. I think, however, that with proper attention Leeks may be grown here equally good. The common method of cultivation is to sow the seed in March, and transplant the plants into rows about 2 feet wide, and about 1 foot apart in the rows. But the best plan is to sow the seed thinly in shallow well-manured trenches, and to thin out the plants to about the distance just named. By this plan the roots are not checked, and if a little soil is drawn up to the plants during the season, it will greatly forward their growth, and blanch them somewhat like Celery. Although

Leeks are less grown here than in the north, still they are very useful, especially when Onions fail short in the spring.

Cossey Park. J. WIGHTON.

NOVELTIES, &c., AT FLOWER SHOWS.

WET and inclement weather has been the fate of all the spring shows held up to the present time. The show at the Regent's Park Botanic Garden on March 23rd came in with heavy rain, which spoilt the attendance at a very pretty exhibition indeed. Here Mr. B. S. Williams, of Holloway, showed *Amaryllis Ixion*, a very striking flower of a vivid scarlet, the base of each petal being marked with a white band; and *Odontoglossum maculosum*, green spotted with brown, and having a white lip curiously blotched. Mr. W. Bull produced in fine condition *Camellia Lavinia Maggi rosea*, a sport from the original striped variety, with the same fine outline and form of petal, the colour a soft rosy carmine, of a shade that will certainly be much appreciated. He had also a variegated form of *Phajus grandiflorus*, which besides flowering freely, is quite an ornamental-foliaged plant. Mr. W. Paul, of Waltham Cross, exhibited *Rose Cœur de Lion*, a very fine Hybrid Perpetual, the colour of which was a bright purplish rose, the flowers large, globular, and full; it is a good hardy variety of robust growth. Mr. W. Cruickshanks, of Langleybury, had a fine lot of cut flowers of his new striped *Verbena Lady of Langleybury*. All the foregoing were awarded first-class certificates. Mr. B. S. Williams received a second-class certificate for *Azalea Charmer*, a flower of a very pleasing bright rosy pink, and very promising on account of its colour; and the same award for *Ananassa Porteana*, which differs from the common variegated Pine-apple in having a broad band of yellow down the centre of each bronzy green leaf, instead of the margins being light-coloured. Messrs. E. G. Henderson also gained a similar award for their *Pyrethrum Golden Feather* (not *Golden Fleece* as stated at p. 87), which gets more attractive with age.

In Mr. W. Paul's stand of six new Hyacinths, he had in addition to those mentioned at p. 88, *La Grandesse*, single, pure white, good spike; and *Victor Emmanuel*, pale crimson, striped with deeper crimson in the centre of each petal. Besides these, *Carmine*, single, very bright carmine crimson, the colour striking, but a small spike, and *Lord Cowley*, single, greyish pale blue, having a little more colour than *Blondin*, but not so much quality, were novelties in Mr. Paul's large group of splendid Hyacinths. Roses in pots from Mr. Paul were very fine, a plant of H.P. Le Rhone being something marvellous in its way. Some Apples from Mr. S. Ford, of St. Leonards, Horsham, were good; among them *Ribston Pippins* so well preserved that they appeared to have been gathered only a few weeks.

At the Royal Horticultural Society's Floral Committee on April 2nd, a very fine plant of the old *Primula denticulata* was exhibited by Mr. Mitchell, gardener to Lord Wenlock, Escrick Park, York, and was awarded a special certificate; it was thought by Mr. Mitchell to have been a new species, so finely had it been grown. W. Marshall, Esq., of Enfield, carried off high honours for Orchids, having a first-class certificate for *Odontoglossum triumphans*, a perfect gem, flowered for the first time in England; and also for a superb variety of *Oncidium carthaginense*. W. W. Buller, Esq., of Exeter, received a similar award for *Dendrobium thyrsiflorum*, a very handsome new

species. No mere word description can do justice to the rare and exquisite beauty of these new Orchids. *Litobrochia undulata*, from Mr. Bull, a handsome robust-growing stove Fern from the Fejees, was very pleasing from its wavy appearance, and was said to be quite distinct. It had a second-class certificate. *Cinchona nobilis*, from the same exhibitor, is one of the bark plants with handsome ample obovate foliage. Mr. Watson, of St. Albans, had plants of his new golden tricolor *Pelargoniums Mrs. Dix* and *Miss Watson*, both first-rate kinds, judging from present appearances; and Messrs. S. Perkins & Sons, of Coventry, had their new variety *Queen Victoria*, a bright-coloured sort, with short stiff habit, and handsomely marked leaves, also very promising. Before the Fruit Committee were produced some fruit of Mr. Turner's new *Cucumber Hedsor Winter Prolific*, which has been so highly commended for winter work; it is a smooth white-spined sort about 16 inches in length. An excellent dish of *Maclean's Little Gem Pea* came from Mr. Carmichael, gardener to H.R.H. the Prince of Wales, Sandringham; they fully deserve all that has been said of it as a forcing kind.

The Royal Botanic Society's Second Spring Show took place on April 13th. A special interest attached to the class for three new Azaleas sent out in 1862, 1863, and 1864, in which Messrs. Lane & Son were first with *Stella*, rosy salmon, scarcely so vivid in colour or so smooth as when shown as a seedling; *Elegantissima*, white, with occasional stripes of rose, and of fine substance; and *Advance*, rosy crimson, heavily spotted in the upper petals. Messrs. Ivery & Son was second with *Flag of Truce*, white; *Madame Dominique Vervaene*, delicate salmon pink, irregularly edged with white; and *Souvenir de Pronay*, rosy crimson. Mr. Turner was third with *Stella: Prince of Orange*, orange red, slightly spotted; and *Charles Enke*, salmon rose, each petal boldly edged with white, and spotted on the upper petals with purplish crimson. Messrs. Ivery & Son received a first-class certificate for *Enchantress*, pale flesh colour, almost white at the edge, slightly streaked with delicate salmon rose, and spotted in the upper petals with crimson, a fine bold flower, with a smooth surface and recurving segments; and a second-class certificate for *Princess Alexandra*, greenish white, mottled and streaked with purplish pink, some of the flowers being wholly pink, and others with portions of the segments of that colour. It was a free-blooming vigorous sort, likely to be useful for market and decorative purposes. First-class certificates were also given to golden tricolor *Pelargonium Queen Victoria*, from Messrs. S. Perkins & Sons, of Coventry; and also to another variety named *Red Admiral* from Mr. W. Paul, the latter, one of considerable merit, having the zone of a novel tint of red, more roseate than usual. Messrs. Dobson & Sons, of Isleworth, had a similar award for *Cineraria Beatrice*, a seedling raised by Mr. Fairbairn, of Syon Gardens; it is a large, smooth, white-ground flower with medium edging of rosy purple, and a very showy variety, and had it a dark instead of a brownish disc it would be a finished flower.

Mr. Williams, of Holloway, had on this occasion a large plant of *Vanda gigantea*, with a raceme of leathery golden yellow blossoms blotched with cinnamon; and an example of *Dracæna sanguinea*, with long narrow leaves having red midribs. Roses and Cinerarias were very gay, and the plants of the latter shown by Messrs. Dobson & Sons were remarkably well grown.

The Royal Horticultural Society's Second Spring Show, an excellent Show, was held on April 16th. Azaleas, Roses, and Cinerarias were in force, and very charming; but unpropitious weather reigned out of doors. The

dwarf Herbaceous Calceolarias shown by Mr. James, of Isleworth, were grown in that fine style for which he is so noted.

Messrs. Veitch & Sons had a handsome new *Sphærogyne peruviana*, with pale green leaves, which will no doubt be seen again. *Coleus Veitchii* from New Caledonia, an improved C. Gibsoni, with rich velvety chocolate centre and bright green edge, was awarded a first-class certificate. *Dieffenbachia Pearcei*, from Peru, with deep green leaves marked with yellowish green blotches, was awarded a second-class certificate. *Panicum variegatum*, from the South Sea Islands, a capital basket plant for a stove, a variegated Grass having the leaves striped with red, green, and white, was awarded a first-class certificate. *Hypocyrta brevicalyx*, from Ecuador, a dwarf-growing Gesnera-like plant, with white-veined leaves and curious puffed-out globular downy orange flowers, was awarded a second-class certificate. These were all from Messrs. Veitch and Sons, who had also the large-flowered *Franciscea calycina major*, some of whose blossoms measured fully 4 inches across; and several examples of *Primula cortusoides amœna*, a very handsome spring-flowering species, proved to be perfectly hardy, though no doubt well adapted for greenhouse decoration. Mr. W. Bull received first-class certificates for two new Ferns:—*Lastrea Filix-mas Barnesii*, an elegant and distinct British variety; and *Athyrium Goringianum pictum*, a Japanese Fern, with a distinct red and grey variegation, and very handsome. *Athyrium Filix-fœmina pulchrum* had a second-class certificate; and the same award was made to Mr. Bull's new *Camellia Lavinia Maggi rosea*, which was not in so good a state as when shown at the Regent's Park.

First-class certificates were awarded to Mr. W. Paul for *Pelargonium Jason*, one of the Cloth of Gold section, with bright yellow foliage, and apparently more robust in constitution than previous varieties; for *Aucuba japonica ovata*, of vigorous growth, with broad ovate deep green leaves; for *Alnus aurea*, an ornamental tree with golden-tinted leaves, suitable for shrubbery decoration; and for the new double crimson Thorn *Cratægus Oxyacantha coccinea flore pleno*, a sport from the pink variety, but an invaluable decorative plant.

Messrs. E. G. Henderson & Son had a new Zonal *Pelargonium* named *Crimson Nosegay*, in which it was not easy to discover much of the Nosegay race; the style of habit greatly resembled that of the old Commander-in-Chief, but the foliage was much darker, and the trusses of flowers were small, and of a dark crimson colour.

Mr. T. W. Pilcher, of Plaistow, received a second-class certificate for seedling *Alpine Auricula Emma*, a rosy crimson ground colour, with yellow paste, and very promising. A large batch of seedling *Alpine Auriculas* was shown by Mr. Turner, of Slough. Many of these were flowers of much promise, and as they were not staged for the inspection of the Floral Committee it is probable that Mr. Turner intends to give them another season's growth before he decides definitely as to their individual properties. Some very fine named *Polyanthuses* were shown by Mr. Wiggins, gardener to W. Beck, Esq., of Isleworth. R. D.

OUR MONTHLY CHRONICLE.

Royal Horticultural Society.—The Society proposes to hold on one of the Tuesday meetings—May 21st has been selected—an exhibition of the beautifully variegated-leaved Tricolor zonate Pelargoniums. These exquisitely coloured plants have now become so numerous that a gay exhibition may be anticipated. A Large Silver Medal will be granted for the most interesting group. Exhibitors are asked to supply written particulars of the

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pedigree of their seedlings, and to affix the same information in an abstract form to the plants themselves when staged for exhibition, with the view of throwing some light on the causes which have induced this leaf-colouration.

French School of Horticulture.—It has recently been decided that a number of young men shall be received as Pupils in the garden at La Muette. The students are required to have some previous knowledge of practical horticulture, and to be not less than eighteen years of age; they will be remunerated for their work at the rate of 65 francs a-month; and the arrangements are so framed that each pupil will be enabled to study all branches of plant culture. Application should be made before the 1st of March in each year to M. Alphand, Ingénieur-en-Chef, Avenue d'Eylau 137, Paris.

Rhododendron Dalhousiæ.—A very fine specimen of this Indian Rhododendron has been flowering during the past spring in the nursery of Messrs. Dickson & Co., of Leith Walk, Edinburgh. The plant was 8½ feet high, and 2½ feet through, and the flowers which are of a rich cream colour, with a delicate lemon scent, measured 4 inches across, and 3½ inches in length. There were 94 trusses, averaging three flowers each, making altogether 282 flowers.

Quercus Banisteri as Game Cover.—The smallest, the scrubbiest, and the wiriest of the Oaks, though perhaps not the most useless, is Quercus Banisteri, or ilicifolia. This little Oak M. Vilmorin has planted to the extent of about half an acre, chiefly under tall Pines. In that position it shows its merit as a cover plant, growing freely under the Pines, and forming a dense level surface with its upper shoots, and an almost impenetrable cover from the toughness of its boughs. It never presumes to go aloft like other Oaks, but remains a flat-headed scrubby subject at from 3 to 4½ feet high. It begins to fruit at five years old, producing from that age onwards abundance of small pretty dark brown acorns, with light brown stripes radiating from their apex; these are greedily devoured by fowls, and would doubtless be equally useful for feeding game. This Oak may therefore be strongly recommended as a cover for game. It suits the poorest soils and coldest situations, and is perfectly hardy.

Damp Walls.—A writer in the *Builder* says:—I have just effected a complete cure for damp exuding from a brick wall, upon which no plaster, much less paper, would adhere, on account of its having been several times saturated with sea water. I have done so by using "Italian plaster," the cost of which is but little more than that of Portland cement, and the wall may be papered upon forty-eight hours after the plaster is used, without any risk of damp or discoloration.

Pentstemons.—These have much improved of late years. Not only has variety of form and colour been secured, but the size of the flower has gone on increasing, and latterly a very great advance has been made by the expansion of the limb segments, which gives to the flowers altogether a bolder character. Some of the new continental sorts leave the varieties of former years very far behind as regards size and form, while they show also a manifest improvement in foliage and habit. They possess, moreover, what is very desirable in the case of flower-garden plants—a vigorous habit, and hardy constitution. The following varieties are among the cream of the novelties in question, and all first-class flowers:—*Alfred De Musset*—reddish-crimson, with beautifully pencilled throat; *Edmond About*—scarlet, with large white throat; *Georges Sand*—bright purplish-lilac, with large white pencilled throat; *Indispensable*—tinted rosy white, throat veined with rich crimson; *John Booth*—rich crimson carmine, with beautiful pure white throat; *L'Africaine*—white, tinged with lilac violet, handsome throat; *Mélanie Lalauette*—fine delicate rose, fringed with carmine, white pencilled throat, dwarf habit, extra; *Pauline Dumont*—light rosy crimson, with white pencilled throat; *Souvenir de Matthieu Pernet*—amaranth purple, throat white, veined with crimson; *Souvenir St. Paul*—rich purplish crimson, with white pencilled throat; *Surpasse Victor Hugo*—fine reddish scarlet, with pure white throat, extra.

French Watering Pipes.—A correspondent of a northern contemporary describes an ingenious mode of arranging the pipes used in Paris for watering roads and gardens. There are many parts, he observes, as near the Bois de Boulogne, and in the Place de la Concorde, where the roads are kept moist by sprinkling them from a hose. And now we come to the fact which may be of service to the managers of large gardens. With the exception of the piece held by the man working it, the whole is made up of nine-feet lengths of iron tubing, like gas pipes, and united by flexible pieces of india-rubber hose. Each length is fitted with two little wheels at each end, thus keeping it up some 3 or 4 inches from the road, and enabling the man with the most perfect ease to take it in any direction; and, when he has finished, he folds them up and runs them off to some other place. One man can thus do the work of two, for he needs no one to help him, even if using 150 feet of pipe; and all the wear and tear of dragging the hose along the road is avoided, and we all know how soon, under such circumstances, the best india-rubber or leathern hose will wear out. This apparatus is also used for washing the trees and shrubs so plentifully seen in the streets of Paris. In dry weather, it is necessary to water the turf in the parks, and this is done with the same kind of apparatus—certain lengths of the iron

piping being drilled with innumerable small holes, a gentle shower is given, and one man can manage a lot of work, as he can attend to three or four places at once.

Shelling Peas and Beans by Machinery.—According to the *Journal of the Society of Arts*, Mr. Price, an American engineer, has invented a simple machine for shelling Peas and Beans. It consists principally of a rolling mill: the rollers are covered with india-rubber, fixed on a wooden support, and driven by a crank. At the bottom of the compartment where the rollers work there are holes, which let the Peas drop into a drawer situated underneath the machine. In working this mill the husks or shells are drawn in and compressed. This compression bursts them, and forces the grain to fall on one side of the machine, whilst the shells pass across and fall on the other side.

OBITUARY.

The Rev. George Cheere, F.R.H.S., of Papworth Hall, St. Ives, died on the 10th ult. The deceased gentleman was a devoted horticulturist, and occasionally exhibited specimens of his productions. Amongst other things very fine forced blooms of Anna Boleyn Pink have been sent by him to the London shows; and at an early meeting of the present season he exhibited some wonderfully fine potsful of Mignonette, remarkable for their healthy and abundant foliage, and the number and vigour of their flower-spikes, as well as for the small size of the pots in which they were grown.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Plants in flower may now be moved to the conservatory or to an intermediate-house; by this their flowering will be prolonged, while the growing plants will gain more space. In ordinary seasons fire heat may be greatly limited towards the end of this month; it remains to be seen whether it may or may not be so in this remarkable one, in which we have had short intervals of extraordinary mildness, alternating with weather of unexampled severity, the searching winds carrying off heat from glazed structures almost with greater rapidity than it could be generated by even good heating apparatus. As there is now plenty of light, increase the temperature; and correspondingly with it, and with the growth of the plants, the moisture also.

GREENHOUSE.

Shading must now be attended to. In arranging the plants a distinction should be made between those that are benefited by more direct exposure to the sun and those which rather prefer the shade, or at all events require a slight screen from the intensity of the sun's rays; they should be placed so that they can be accommodated in these respects. Give air as freely as the weather will permit, more especially on account of hardening those that are usually turned out in the early part of the summer. When plants are turned out, the state of the pots should be examined after rain, and if water is then observed to stand on the surface of the soil, the plants should be shifted. Propagate *Heaths* and other hard-wooded plants as soon as they push young shoots sufficiently for the purpose. If mildew appears, apply flowers of sulphur, and keep the house clean, removing all decayed leaves, and admitting a free circulation of air to dry up thoroughly, once a-day, all superfluous moisture.

CONSERVATORY.

Towards the middle of the month a little air may be left on at night, and it should be freely given during the day in fine weather. This will have the effect of causing dryness in the atmosphere, therefore means must be used to prevent its getting too dry for the young growth of plants, such as syringing the foliage, and also the footpaths and borders, reducing the air at the same time, or even shutting up the house early if there are any signs of red spider. The appearance of this pest is a sure indication of a deficiency of moisture, either at root or top: let the former be especially seen to, in order that a healthy growth may be promoted. Regulate young shoots so as not to encourage growths that a little foresight might determine to be useless, and which if allowed to proceed would ultimately have to be cut away, with much loss of expanded foliage, and consequent derangement of the flow of sap, which should always be avoided as far as possible.

PITS AND FRAMES.

As many *Bedding plants* brought forward in these structures may now be placed under an awning, space will be left for sowing annuals and propagating other plants by cuttings for autumn-flowering; and also for the reception of plants that require the assistance of bottom heat to start them, or to forward their flowering, or that require shading, nursing, or some other treatment different from the routine suitable for the generality of plants in the stove and greenhouse. Any of these plants that are weak and not thriving, may be invigorated in the pits or frames.

FORCING.

Pine Apples.—Maintain for fruiting plants a steady bottom heat of about 84°. The air of the house should range between 75° at night and 85° in the day, and it may rise by sun heat to 95°. Those for autumn and

winter fruiting, such as Cayennes and Black Jamaicas, should be finally shifted, and to insure their starting, gradually reduce the moisture and increase the heat. Encourage the growth of succession plants by heat and moisture, but at the same time give sufficient air to prevent the plants being drawn up weakly. *Vines.*—Let the temperature rise progressively; and in order that the fruit may acquire the fullest flavour, allow 70° by night and 85° in the day, or 95° by sun heat. In the later vineries, Hamburghs, Muscadines, and others of a similar nature will require but little fire heat unless, as hitherto, the season exhibit unusual characteristics. Continue to pinch off laterals and secondary growths. Beware, however, of meddling with the foliage, except that connected with laterals. Rather than this, leave all the originally-expanded leaves, or those developed before the first stopping of the shoots; if they should shade the fruit, heed not, it will colour notwithstanding, while if the Vine is injudiciously divested of much foliage, bad colour and inferior flavour will be the undesirable result. Whilst the fruit is swelling, take care that the border is sufficiently moist; make a point of seeing to this immediately before the fruit begins to colour, as afterwards water will deteriorate the flavour. *Peaches* and *Nectarines.*—When the fruit is stoned, those will bear a high temperature provided the roots have sufficient moisture; and if this be the case sun heat, as high as 90°, will prove congenial. *Figs.*—Attend to watering so that the plants may never get once too dry; stop the young shoots wherever there is a tendency to become elongated. *Strawberries.*—Introduce the latest succession.

FRUIT GARDEN.

Trees on walls should be frequently inspected, in order that disbudding may not be delayed. This operation should be early commenced on *Peaches* and *Nectarines*, removing first those shoots that push right in front (foreright), for these should all be ultimately removed unless one may be required for supplying some vacancy; the most forward of these will, in general, be on the central and more upright branches. Then remove such of the lateral shoots as are not eligibly situated, or which have no fruit at their base. One thing above all demands especial care, and that is to retain succession shoots to replace those that should this season bear fruit. The selection of these is easily determined. They should be those that are formed nearest the base of the bearing shoot which they are to replace. Shoots that must be left on strong parts, and which are likely to become too vigorous, should be stopped when about 6 inches long. Horizontal branches, or those approaching that direction, should last disbudded. Syringe wall trees in the morning whilst the nights are cold, but as soon as there is no longer danger from frost, commence about 4 P.M.

KITCHEN GARDEN.

Plant *Cauliflowers* forwarded under glass; also *Cabbages* for the principal summer crops, and some *Brussels Sprouts* for early use. Cut *all* the shoots of *Asparagus* as they become fit, but leave off entirely in good time; by this means the plants will gain strength for next year. The cutting season need not be so prolonged as formerly, since so many superior varieties of early Peas can now be obtained, as a substitute for Asparagus. Sow *Beet*, *Borecole*, and the principal crops of *Broccoli* and *Cauliflower* about the 20th. Sow and plant out *Lettuces* for succession; sow also *Radishes*. Sow *Savoys* for the latest crops, and the Early Ulm for first use; early sorts of *Turnips* for summer use; and *Onions* for pickling, in the beginning of the month. Sow *Scarlet Runners* and successions of *Kidney Beans*. Sow *Endive* in brisk heat: it is apt to run if it lingers in vegetating. Plant out *Celery*.

FLOWER GARDEN.

Take the first opportunity of favourable weather to plant out the various kinds of *Bedding plants*, *Dahlias*, &c.; but if northerly winds prevail at any time for several successive days, it is better to let the more tender plants remain under shelter of the awning till settled weather is apparent, and the sky is free from masses of dusky white clouds depositing heavy drops like melted hail. Proceed then at once to fill up the beds according to pre-arranged plans, for making which the backward season has given ample time. By the time that planting is completed, the walks and lawn should be in perfect order

FLORISTS' FLOWERS.

Auriculas.—Give plenty of air night and day in mild weather; stir the surface of the soil in the pots, and when the bloom is past, and where seed is not wanted, cut over the stems a little below the truss. *Calceolarias.*—Shift any that may require more pot room; keep the house cool, and shade those in flower from hot sun; water them occasionally with weak manure water. *Cinerarias.*—Sow as soon as the seeds are ripe. *Carnations*—Top-dress and stake. *Dahlias.*—Put in the stakes before planting out. *Fuchsias.*—Stop the shoots of any that are long-jointed; shift on all those that require more pot room, giving good drainage: apply liquid manure once or twice a-week, and syringe overhead in the afternoon when the house is shut up. *Hollyhocks.*—Plant out seedlings; sow on a gentle hotbed. *Pelargoniums.*—Give air freely when the weather is favourable. *Pinks.*—Thin out blooming stems where too numerous; give liquid manure twice a-week. *Petunias.*—Pinch off flower-buds and stop the shoots, where a late bloom is required. *Phloxes.*—These may be propagated by cuttings.

Crataegus Oxyacantha coccinea
flore-pleno.
J. N. Fitch imp.

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THE NEW DOUBLE CRIMSON THORN.

(*Cratægus Oxyacantha coccinea fl.-pleno.*)

WITH AN ILLUSTRATION.

The subject of our present plate, from the pencil of Mr. Fitch, is so intense in its colouring, that we find, on comparing the drawing with the flowers on the original tree, that the latter are even deeper and brighter than those which are here represented. The flowers from which our sketch was taken, were supplied by Mr. W. Paul, from his nurseries at Waltham Cross.

As a hardy ornamental tree for planting in the shrubbery and flower garden, we look upon this Thorn as the grandest acquisition that has been obtained for many years; and as a forcing plant it is equally desirable, for the young plants appear to flower freely when only a few inches high. This, indeed, has been sufficiently shown by the examples which have been exhibited by Mr. W. Paul at the Royal Horticultural Garden, South Kensington, and at the Royal Botanic Garden, Regent's Park, several times during the spring of the present year.

As there has been some doubt created in the mind of the public as to whether there are not two new double Crimson Thorns, issuing from different establishments, under similar names, we are glad to be able to dispel the mystery. We speak advisedly when we say that the plants shown by Mr. William Paul, and the branches shown by Messrs. George Paul & Son, are identical both in leaf and flower. The variety is a sport from the double Pink Thorn, and originated in the beautiful and well-kept garden of Christopher Boyd, Esq., of Cheshunt Street, near Waltham Cross, where it still exists. It has, therefore, never been the exclusive property of any one nurseryman.

The history of the sport is briefly this: About seven or eight years ago some flowers of this intense hue were observed on a plant of the double Pink Thorn, and on examination it was found that a strong branch had started up from near the centre of the tree, with leaves as well as flowers differing from its parent. The branch was encouraged, and year by year increased in size, retaining the colour and character originally observed. The parent plant is apparently about twenty-five years old, 30 feet high, and as much in diameter, measured from the outermost branches at its greatest width. There is still only one stout central branch of this deep colour; the other branches, which are profusely adorned with flowers, being of the original pale pink so well known to horticulturists. When looking at the tree recently, so great was the contrast between the sport and the original, that we could not rid ourselves of the impression that the parent variety was in this instance paler than usual, and we asked ourselves whether the colouring matter had not been drawn from the larger surface and intensified in this particular branch by one of those secret processes which the student of Nature is often called upon to behold and wonder at, without being able to account for or explain. This may be fanciful, but here is certainly a *lusus naturæ* worthy of the attentive consideration of our vegetable physiologists.

We do not hesitate to advise every one who has a garden, to purchase this plant at once. We hear, on good authority, that the stock in the hands of the nurserymen is at present limited, and not only will those who purchase now secure the best plants, but those who delay may not obtain any. Moreover, plants purchased in pots *now* may be grown and established so as to flower well either in or out of doors next spring, whereas if re-

moved from the ground in the autumn of the year they can hardly be expected to do this.

It may be added to complete the history of the plant, that it has won First-class Certificates at the exhibitions of the Royal Botanic Society and the Royal Horticultural Society, and, also at the Great International Horticultural Exhibition of 1866.

P.

NEW AURICULAS.

The spring of the present year has been somewhat singularly productive of new Auriculas. For some years past there has been a comparative lull in the production of new varieties, which is not to be wondered at, seeing how little variation there is in the Show Auricula, and how many of the seedlings annually bloomed must of necessity be but a repetition of what is already known. Indeed, it is said that that veteran Auricula-grower and raiser, Mr. Geo. Lightbody, of Falkirk, deems himself fortunate if he should succeed in getting one first-class flower from among a thousand seedlings. The area of the cultivation of the Auricula is also one of limited extent. It requires a floral enthusiast to some extent, to make a successful Auricula-grower; and probably if any one would desire to see a manifestation of this kind of enthusiasm, pure and simple, he could not do better than attend the annual meeting of some Auricula society, where he could not fail to be touched by the genuine earnestness of many of those who make the cultivation of this flower "a hobby."

Foremost among the new flowers stand two fine grey-edged varieties, raised by Mr. Turner, of Slough. The first, *Charles Turner*, has a well-defined ground colour of violet crimson, the eye yellow and well formed, clear white paste, stout and smooth, and narrow grey edge, the pips finely formed and stout, the truss erect and bold, and the habit excellent. The second, *Colonel Champneys*, has a ground colour of bright rosy purple with regular narrow edging of grey, a good eye, and clear smooth white paste, the pips well formed and stout, forming a bold truss; the habit also first-rate. These received first-class certificates at the second spring show of the Royal Botanic Society, Regent's Park. Other new flowers in this division are Annie and Eliza, seedlings raised by Mr. John Pink, Coburg Road, and awarded first-class certificates at the recent meeting of the South Metropolitan Auricula Society. The first, *Annie*, has a well-defined ground colour of rosy purple with narrow grey edge, clear white paste, smooth and regular, pips stout and well formed, of fine quality and great promise. *Eliza* has a very dark brown ground colour with broad edging of grey, white paste, clear and smooth, and pips of fine form and substance. Another notable new grey-edged flower is *Mrs. Butcher*, raised by Mr. John Butcher, of Camberwell, and awarded a first-class certificate at the South Metropolitan Show. The ground colour is dark crimson, well-defined and regular, with broad grey edge, clear white paste, very smooth, pips large, of great substance, and forming a bold and erect truss.

At the same meeting a similar award was made to *Miss Oliver* (Pink), a white-edged flower of considerable promise, the ground colour dark crimson with deep edging of white, and clear white paste.

Of self flowers, Mr. Turner had two very fine representatives of this division, which were awarded first-class certificates at the Regent's Park Show—namely, *Cheerfulness*, rosy purple ground colour, with smooth white

paste, pips stout, of good size and outline, but a little rough as shown, owing to being somewhat out of condition—it is nevertheless a flower possessing fine properties; and *Crown Prince*, ground colour rosy mulberry, changing with age to dark crimson, pips large, bold, smooth, and of fine form, truss and habit good. *John Penn*, raised by Mr. Butcher, has a rosy crimson ground colour dashed with violet, the pips stout and smooth, but the paste hardly large enough according to the recognised scale of properties.

Much more numerous have been the accessions to the Alpine class, which has become greatly improved during the last few years in the hands of Mr. Turner and others. Both in the size and in the colour of the flowers is the improvement noticeable, and the latter evidences new and beautiful shades that bid fair to earn for this flower a high popularity. The plants are strong and lusty in habit, and they will bear a considerable amount of exposure to wet and cold. It was generally observable in these Alpine varieties that the ground colour proper formed but a small proportion of the margin surrounding the paste. The marginal colour to the somewhat indistinct ground colour prevailed so much, that in giving a popular description of these new flowers they shall be classed in accordance with the presence of the prevailing hue. These showy marginal colours were either bright crimson, purple or violet, or buff, the latter invariably distinguishing those flowers which possessed least quality.

Of the crimson hues the following were selected for awards:—*Lustre* (Turner), bright yellow paste, surrounded by a glossy dark ring of ground colour, margined with bright claret crimson, flowers large and smooth, a striking variety; *Constellation* (Turner), in the way of Lustre, but a larger flower, both paste and ground colour being of greater dimensions, the latter being also darker and the margin brighter, pips large, a bold and showy variety. These two were awarded first-class certificates at the Royal Botanic Show. *Defiance* (Turner), rich claret crimson ground colour diffused throughout the margin, bright yellow paste, pips large and stout, a bold and striking flower, though a little rough; *Vivid* (Turner), dark ground colour, each segment of the pip broadly margined with lively rosy crimson, flowers large and smooth, truss dense and erect, being, as was remarked at the time, a true Auricula truss; these were awarded second-class certificates at the Royal Botanic Show. *Emma* (Pilcher), has a ground colour of rosy crimson suffused with purple, sulphur paste, good pip, and smooth; awarded a second-class certificate at the Royal Horticultural Society, and afterwards a first-class certificate at the South Metropolitan Show. *Rifleman* (Butcher), glowing dark crimson ground colour margined with a narrow edge of a paler hue, clear yellow paste, pips large and bold, a novel and striking flower; and *Jane Webster* (Butcher), ground colour intense dark crimson margined with a lighter hue, pips stout smooth and fine; these were awarded first-class certificates at the South Metropolitan Show. *Wonderful* (Turner), is a flower of extra size, the ground colour formed of dark velvety blotches at the base of the segments, which are showily margined with bright rosy crimson, clean and smooth bright yellow paste. *Landseer* (Turner), has a bright claret crimson ground colour, with pale yellow paste, producing large and showy trusses of flowers. *President* (Turner), dark crimson ground colour with margin of fiery claret crimson, a very striking variety. *Sparkler* (Turner), is in the way of President, but the ground colour is not of so dark a shade, truss fine, bold and striking.

Shades of violet purple and lilac were seen in the following flowers:—*Echo* (Turner), velvety crimson ground colour margined with rosy violet,

pale sulphur paste a little restricted in size, pips large, smooth, and of good quality; and *Fascination* (Turner), rich dark ground colour with narrow margin of pale violet, pale sulphur paste, pips smooth and even, a very pleasing and effective variety; these were awarded first-class certificates at the Royal Botanic Society. *Lady Middleton* (Butcher), has a dark crimson ground colour margined with violet, and pale sulphur paste, a flower of fine properties; awarded a first-class certificate at the South Metropolitan Show. *Bertha* (Turner), has a dark crimson ground colour, and is distinctly margined with pale purple on each segment of the pip, pale greenish yellow paste; awarded a first-class certificate at the Royal Horticultural Society. *Jessie* (Turner), is of a rich velvety crimson ground colour with narrow margin of rosy-violet, bright yellow paste, flowers large and fine; awarded a second-class certificate at the Royal Botanic Show. Other flowers of this prevailing hue of colour were *Princess* (Turner), dark ground colour with margin of clear violet changing to rosy violet with age, a novel and handsome flower; and *Annie* (Turner), narrow dark circle of ground colour, broadly edged with rosy crimson and lilac, clear white paste, smooth but thin flowers.

The presence of more than two tints of the ground colour has given rise to a division that has been well denominated "Fancies." These are represented by *Trumpeter* (Turner), rich dark red ground colour, bordered with pale rosy crimson, and margined with rosy buff, large and smooth yellow paste, the pips large and very novel; and *Selina* (Turner), dark blotch of ground colour, bordered with rosy violet, and edged with a paler hue, which becoming very pale with age deprives the flower somewhat of its attractiveness—awarded second-class certificates at the Royal Botanic Show. *Novelty* (Turner), has a dark ground colour, bordered with pale violet and edged with buff, pale yellow paste, a novel and striking flower; awarded a second-class certificate by the Royal Horticultural Society. *Marion* (Turner), has a silken velvet ground colour, bordered with rosy crimson and distinctly margined with pale violet, and is a very striking flower, but wanting in quality.

This list, extensive as it is, by no means exhausts all the new varieties of the present season; it gives the cream of these new and beautiful forms, which appear capable of being indefinitely multiplied by means of careful crossing and seeding.

Quo.

ORMSON'S PARADIGM FRUIT AND PLANT HOUSES.

The difficulty which gardeners and pomologists generally, more especially those whose gardens lie in exposed situations, experience in combating successfully the destructive effects of cold easterly winds and spring frosts—evils which usually occur just at the time when fruit trees are putting forth their tender blossoms—has led to a very general desire for cheap glass houses, since they are not only useful in securing a crop, but also in prolonging the season of supply. Neither expensive walls nor costly coverings can be thoroughly relied on for enabling the cultivator to cope successfully with the elements; for even when spring frosts have been rendered harmless by these appliances, a sunless summer or an excessively wet autumn will often prevent the elaboration of the sap and ripening of the wood, which are necessary to the fertility, if not, indeed, to the very life of the plant. Among other plans for coping with these evils, that of Mr. Ormson, as exhibited in the eastern arcade of the Royal Horticultural Society's gardens at South Kensington, and publicly announced under the name of Paradigm

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Houses, a plan at once comprehensive in design, and economical in principle, is well deserving of consideration. By this plan it is proposed to supersede expensive walls as a boundary to gardens, by substituting fruit

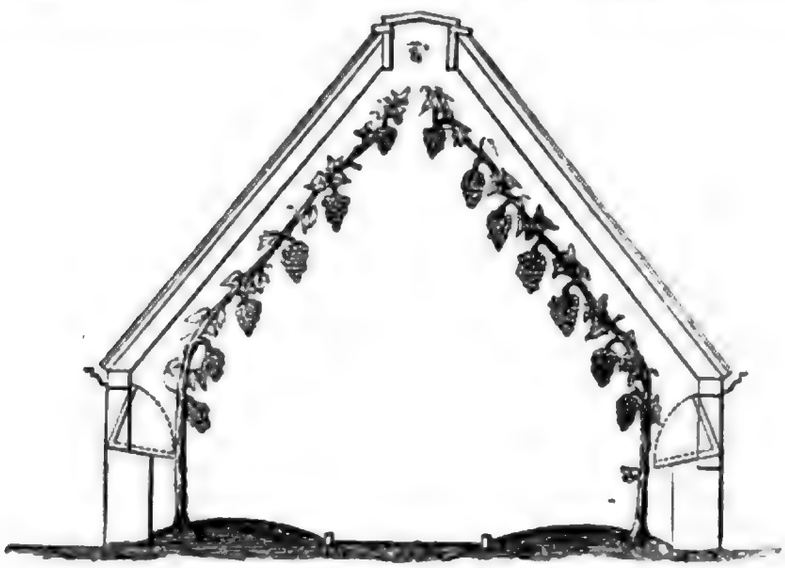

Fig. 1.

and plant houses in their stead; and, by this means, it is argued, the cultivator will have all his fruit trees completely under control, and safe from the vicissitudes of climate, while by heating some and regulating the supply of air to others, the crops may be forwarded or retarded so as considerably

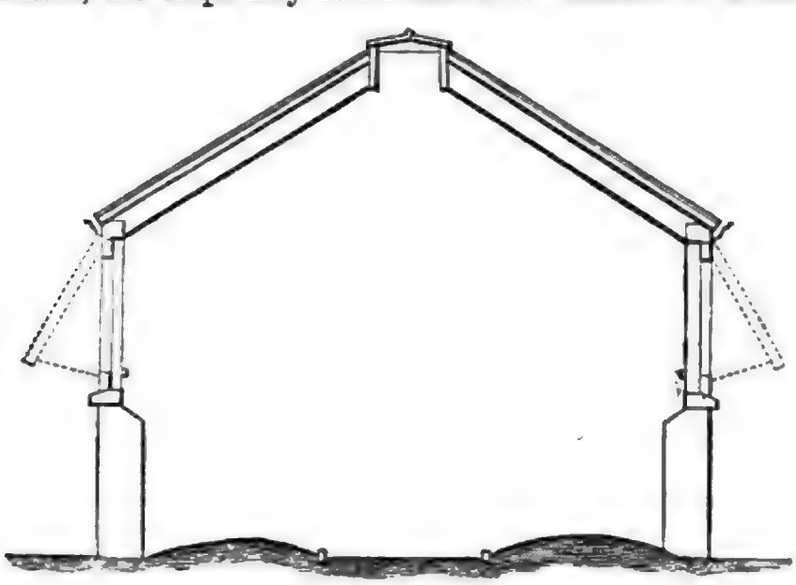

Fig. 2.

to prolong the season of supply. Many of the finer kinds of fruits, also, which are now unknown save in peculiarly favoured localities, might by such a provision, be secured in plenty and perfection in all.

These new houses of Mr. Ormson's have the recommendation of being simple, efficient, and substantial, and, as we are informed, at the same time very moderate in cost. They are made in two forms, the one of which is more particularly adapted for fruit growing upon trellises, as represented by *fig.* 1. This house is 10 feet in width, and 8 feet 3 inches high, but can

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be made to any width and height required. There is a ventilating flap 12 inches wide on each side fitted with cords and pulleys, by which means 20 feet in length may be opened or closed at once; while at the ridge or upper angle of the roof is fixed a continuous ventilator, giving a clear opening of 12 inches the whole length, and closed by means of a moveable capping, which is held in position by moveable iron stays, and is capable, by pulling a sash-line, of being elevated to a height of 6 inches above the roof, whereby, as it still remains over the opening, the entrance of rain is prevented. This opens in 20-feet lengths, and, on the cord being relaxed, falls back into its position, and effectually shuts out the external atmosphere. The plan has all the advantages of the lantern mode of ventilation, combined with the economy arising from its greater facility of construction.

In *fig.* 2 is shown a form of house better adapted for the growth of flowering plants or pyramidal fruit trees. This can also be of any required width or height, but the length of both must be some multiple of 10, as they are framed in 10-feet lengths or bays, by which arrangement greater economy in construction is secured. The ventilation in this house is provided for by opening the side sashes simultaneously in 50-feet lengths, by a very simple application of machinery, and by the adoption of the same form of ridge ventilator as already described.

One point in the construction of these houses is calculated to recommend them to favourable notice—namely, that the parts are made up in definite lengths, by which not only facility of construction, but facility of removal, is secured. Owing to this circumstance their cost does not greatly exceed that of an ordinary garden wall.

T.

ON THE CULTURE OF THE POTATO.

Though the season for planting the Potato is for the present passed, yet a few remarks on this all-important subject may be useful. I need not say what a necessary article of food the Potato is to all classes in this country, but more especially to the working people, to whom a deficient crop is a most serious matter. The retail price in Knaresborough and other markets in this part was in the spring of last year 6*d*. the weigh of 21 lbs. for the best samples of eating Potatos; while in the present spring the prices run from 1*s*. 8*d*. to 1*s*. 10*d*. the weigh of 21 lbs. This is a great difference in price within twelve months; yet the growers are not better, if, indeed, they are as well paid for the crop, than when it was sold at the lower price, as fully two-thirds of the crop were destroyed last year by the murrain, whilst in the previous season very little injury was done.

I, like many others, have during the last twenty years given much time, labour, attention, and thought to the matter; but, like most other people, I have never been able to discover any permanent remedy for the rot—a subject I do not now intend to discuss. In some fine dry seasons, like the summers of 1864 and 1865, I have had little or no disease, but in cold wet seasons like the last, the crops have always been more or less diseased. So lightly had the crops of 1864 and 1865 suffered from the murrain, that many people began to hope the disease was dying out, but the sad destruction of last year has dissipated these hopes.

I read with great interest the results of the different experiments on Potato culture that are from time to time reported in the papers; but my

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own experience has led me to think that sometimes inferences are too hastily drawn from successful experiments. A series of experiments may for one or two favourable seasons give very satisfactory results; but to make them of any value they should also be continued through two or three unfavourable seasons, and if the results are equally satisfactory then, their importance cannot be doubted. All experiments should be repeated for several seasons before the results are reported.

I will not trouble your readers with the details or results of any of the experiments I have myself tried, but, instead, I will offer a few very simple remarks on the culture of Potatos in gardens.

The following are the principal points to be attended to:—1st, The Best Soil; 2nd, Trenching the Soil; 3rd, The Sets; 4th, The Time for Planting; 5th, The Varieties to Grow; and 6th, General Remarks.

The Best Soil.—In general a light fresh sandy loam is the best for the growth of the Potato when fine flavour and mealiness are required. On heavy or wet lands many kinds become watery or waxy, and are very unfit for table use. The soil for Potatos should neither be too stiff and untractable, nor too light and crumbling, yet rather of the crumbling kind; neither too poor, nor too rich, yet inclining to richness; neither quite dry, nor yet surcharged with moisture. Perhaps in no part of the country are finer Potatos grown than on the "warp" land (chiefly a sandy deposit), on the banks of the river Ouse. The Selby Potatos always command the highest prices in Leeds, Manchester, and other markets.

Trenching the Soil.—I consider this a point of the first importance. A good depth of soil is absolutely necessary to grow Potatos well. From long practical experience I am convinced that trenching at least 2 feet deep is the best preparation of the soil for Potatos, and that crops will in general thus be obtained, better in quality and more abundant in quantity, than by any other mode of culture. Trenching the ground is not a preventive of the murrain, though I have never found Potatos to rot worse on trenched land than on land not trenched, but rather the contrary, as the soil when trenched, being more open, is generally drier and warmer than land simply dug; neither is it so much affected by sudden changes of the weather. I am aware that trenching the land for Potatos is but seldom practised, but I can confidently recommend it; and any persons about to plant a rood of ground, if they would trench one half, and dig and manure the other half as usual, and plant the whole with the same kind of Potatos, treating them in all other respects alike, would be convinced by one trial how beneficial trenching is to this crop.

The Sets.—Moderate-sized whole sets are in general to be preferred, and care should be taken not to leave more than one or two stems to each set, as when all are left to grow they become so crowded that the leaves do not properly perform their office, and in consequence the quality of the Potatos will be inferior.

Time for Planting.—Generally any time from the middle of March to the end of April, or the early part of May. When the soil is in a nice dry working condition the sooner they are planted the better, but the weather will sometimes prevent the planting being done as soon as would otherwise be desirable. The sets should always be planted in rows varying from 18 to 36 inches apart, and from 8 to 16 inches in the rows, according to the size, and the nature of the soil. They should also be planted at a depth varying from 4 to 6 or 8 inches, according to the kind. After they are planted, the soil should be kept well stirred between the rows, to keep

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down weeds, and to admit the sun and rains; and the young plants should be nicely earthed up as soon as they are of sufficient size. I need scarcely say that Potatos should always be planted in an open situation, where they will receive plenty of sun and air. This is absolutely necessary in order to have tubers of good quality.

Varieties to Grow.—These are now so very numerous that it is difficult to make a selection without omitting some really good kinds. As almost every locality has its favourite kinds, it is a very safe practice to grow these sorts, adding to them such others as have been proved to be meritorious. It is a good practice to get the seed occasionally from another locality, as this improves the quality of the crop, but if the soil is regularly trenched there is not the same necessity for frequent change of seed. For early use there is nothing better than a good strain of Ash-leaved Kidneys, but these are now so numerous, and each kind is so strongly recommended, that it is a somewhat difficult task to select. In speaking to an acquaintance of mine lately on this matter, he said he grew nearly a dozen sorts last season which had been sent him by different persons, but he found them so much alike he threw the whole together when taking them up, as he had not conveniences for keeping them separate, and even if he had, they so nearly resembled each other that it was not desirable to do so. The following I have had good here, but doubtless the list does not include all the best sorts:—*Early.*—Ash-leaved Kidney, Early Ash-leaved, Mona's Pride, Royal Ash-leaved, Myatt's Prolific, and Early Handsworth. *Second Early.*—Lapstone or Haigh's Seedling (which is one and the same kind, and one of the finest of Potatos, but suffers much from the murrain), Dalmahoy, and Daintree's Seedling. *General Crop.*—Flukes, Skerry Blue, York Regent, Fortyfold, White Rock, and Scottish Regent.

General Remarks.—Potatos intended for seed should always be taken up before they are fully grown, as they make better sets, and grow with more vigour than when fully ripe. But Potatos for eating should always be allowed to ripen properly before they are taken up; for when dug up before they have done growing, they are not so mealy or so finely flavoured as when left to mature properly.

By carrying out these different matters I have generally had very satisfactory crops of Potatos, but I regard the trenching of the ground as the most essential point in their culture, and I am much inclined to believe that if it were more generally adopted, we should not have much to complain of about our Potato crops.

Stourton. M. Saul.

A TRIO OF FIRST-CLASS MARANTAS.

There are few family groups of plants with ornamental foliage that would go further in affording materials combining rare beauty and picturesque variety for the decoration of a plant-stove, than that of the Marantas, in which are popularly included certain species that more strictly belong to Calathea and Phrynium, though for all gardening purposes they may be regarded as one. The Caladiums may be more flaunting in their colouring, and may create a more favourable first impression; but we doubt if even they, with their soft-textured flabby leaves, could stand a close comparison with the polished parti-coloured and more permanent-leaved Marantas. Whatever his special predilection, whether in favour of Arads,

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Ferns, Palms, or other popular groups, no one could deny that the Marantas come into the first rank of fine-foliaged plants of moderate size.

The Marantas, taking the name in the broad sense above indicated, form not only a well-favoured but, as we have intimated, a numerous family, no fewer than twenty-five new members whereof were shown in one group by Mr. Linden at the International Horticultural Exhibition of 1866. Our present object is not, however, to exhaust the catalogue of beauty which

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the genus affords, but to invite especial attention to a few of the choicer gems which our gardens have recently acquired from it. These are Maranta Veitchiana, M. illustris, and M. roseo-picta.

Maranta Veitchiana, referred by Dr. Hooker to Calathea, and of which, by the courtesy of Messrs. Veitch, we are enabled to give the annexed illustration, was the first known of the foregoing, and occupies the first position also in respect to its ornamental properties. It is a stout, free-growing herb, attaining the height of 2 feet or upwards, its stalked leaves being more than a foot in length. These are ovate elliptic, with a dark glossy green ground, in strong contrast with which occurs a series of large obcuneate patches of pale yellowish or greyish green close to the midrib, and these being closely placed form an irregularly-defined pale centre. Exterior to these, and about midway to the margin, occurs another series of bold connected markings of a lunate or scolloped outline, and of a transparent yellowish grey, giving the leaf a remarkably pictorial effect, either when seen from above or beneath, for the paler portions, as seen against the light, show themselves to be quite transparent. The under side is of a rich vinous purple, paler where the spotting occurs. The effect of this colouring is very rich, so that the plant is one of remarkable attractiveness, especially when it acquires mature size, and has thrown out a spreading head of its exceedingly beautiful leaves.

Maranta illustris is of a somewhat different type, being of dwarfer habit, and having comparatively broader leaves with shorter petioles. The leaves are roundish oblong, deep reddish purple beneath, and with a red footstalk, the base of the costa being also red; along the centre on each side the costa is a band of yellowish green, and thence directed outwards occur alternate zebra-like bands of pale and deep green; next occurs a scolloped belt of pale greyish green, almost white, and finally a shaded dark green margin. The contrasts presented by these tints, which here and there, except in the case of the white belt, blend softly into each other, is very charming, and the plant is one of the most beautiful of its race.

Maranta roseo-picta is of the same character as the last, but is apparently of smaller growth. It has roundish oblong leaves of a shaded dark green colour throughout, except that a wavy or scolloped belt of clear deep rose colour extends from the base to the apex, a little within the margin, and that the costa is conspicuously deep rose-coloured throughout. The petiole and back of the leaf are in this case also, of a deep reddish purple or wine colour.

This trio of Marantas all come from tropical South America. The exact habitat of M. Veitchiana is not stated, but that of the others is the country bordering the Upper Amazon. Those who may desire to see well-executed and trustworthy coloured figures of the plants, may find them in the works quoted below—namely, *M. Veitchiana* in the "Botanical Magazine," at t. 5535; *M. illustris* in "Flores des Serres," at t. 1691-2; and *M. roseo-picta* in the latter work at t. 1675-6.

M.

FRUIT CROPS IN THE NORTH.

We have now arrived at a sufficiently advanced period of the year to be able to form a tolerably accurate estimate of the Fruit crop of the coming season. Notwithstanding the long continuance of dull wet weather last autumn, which was very unfavourable for ripening wood, and notwithstanding the severe cold weather of January and March, the prospect is very

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satisfactory in this neighbourhood. With the single exception of Apples, all other kinds of fruit will afford full average crops.

The cold weather of March kept the Apricots late in coming into flower, which was very fortunate, as the weather was favourable to their setting after they got fully expanded. In general there was not so much bloom as usual this season, and the crop in some places is below the average. The crop here is, however, a good average one, the young trees being very full.

Peaches and Nectarines are a very heavy crop. There was a great bloom, and the weather being mild, they set very thickly—equally well on trees fully exposed, as on those under protection. I would here offer a word of advice to young gardeners, and that is, not to be afraid to thin the fruit well, and rather to leave too few on the trees, than too many. Ten dozen fine Peaches are worth more than twenty dozen small ones; besides, the trees when not overcropped, make better wood for another season.

Plums are an extraordinary crop. The show of bloom was very fine, and the weather was everything that could be wished. They will be very low in price this season. Cherries also are a good crop.

The Apple crop will be much below an average, yet better than could be expected when we consider the heavy crop of last season, which so exhausted the trees of their organised matter, especially in orchards where no attention is paid either to pruning the wood or thinning the fruit, that a season of rest is indispensably necessary to enable them to store up matter for another crop. On young trees that were not overladen with fruit last year, there is a fair crop this season. Here we have a very fair crop, though taking the whole of the trees it is certainly below an average. Some of them have little or no fruit, others have a light crop, and some have a very heavy crop, especially the following sorts:—Cockpit, Improved Cockpit, Yorkshire Greening, Ribston Pippin, Margil, Ingestrie, Calville, Green Balsam, Dumelow's Seedling, and others too numerous to mention.

Pears are a good crop, fully an average one, both on standards and walls. Some sorts are very heavily cropped.

Bush fruit is very plentiful, and the trees are looking very healthy and clean. Gooseberries and Currants of all kinds, and Raspberries are also plentiful.

The Strawberry crop will be abundant. The plants are looking remarkably well and healthy, and are full of blossom. All kinds promise well for fruit. I never had Keens' Seedling fail until 1865, when the failure of the Strawberry crop was so general throughout the country. It also failed last year. I have a plantation of Keens', now four years old, from which I expected a good crop in 1865, but was disappointed, as I was in 1866, when the crop was again a failure. I was much inclined to dig them up, but the plants looked so strong and vigorous, that I was induced to leave them. Now they are one mass of bloom. The crop will be extraordinary. Sir Harry, about which so much has been said of late, I have grown nine or ten years. I always found it a free grower and great cropper. I never considered it other than a very coarse fruit, and did not grow it extensively until last year. In 1865 it bore me a heavy crop of fruit, and as it stood the long-continued hot dry weather on our soil better than any other kind, I was induced to plant more of it. Last year the crop was also good, so that here it has proved itself a great bearer in seasons when other sorts have failed. The British Queen does well here; I grow it largely.

From the above remarks it will be seen that the prospect of good fruit crops this season is very cheering. Notwithstanding all that has been said

about the changeableness of our climate, there will be a fine supply of all kinds of fruit with the exception of Apples; and the lightness of this crop is owing not to the weather, but to the want of proper management in pruning the trees, and thinning the fruit last season.

Stourton. M. Saul.

[The extraordinary show of Strawberries, which we hear is general, suggests that runners may be scarce, and that those which are produced early should be secured.—Eds.]

THE NEW VARIEGATED ZONAL* PELARGONIUMS.

Such a show of this popular class of Pelargoniums was never before seen as that brought together at South Kensington on the 21st of May. From the earliest forms down to the very latest and most advanced developments, the section was represented, and that in such quantities as to be almost bewildering. The following awards of first-class certificates were made by the Floral Committee:—To Messrs. E. G. Henderson & Son for *Sunshine*, which has a zone of dark bronze and fiery carmine, well-defined and regular, and a margin of gold, habit good; a showy and effective variety. To Messrs. Jas. Garraway & Co., of Bristol, for *Mrs. Allen*, which has a narrow bronze and fiery carmine zone, unusually well-defined and regular, and a pale yellow margin; leaves small, but very distinctly marked. To Mr. Grieve, of Bury St. Edmunds, for *Victoria Regina*, a cross between a green-leaved seedling and Lucy Grieve; it has a broad dark bronzy and fiery red zone, well defined, and a medium margin of pale yellow; good habit, and effective. To Messrs. F. & A. Smith, of Dulwich, for *Resplendent*, a very novel and attractive variety, with broad well-defined reddish brown and glowing carmine zone, and narrow yellow leaf-margin; *Magnificent*, with well-defined zone of bronzy brown and deep carmine, and yellow margin, foliage good, and excellent habit; and *Jetty Lacy*, with zone of reddish chestnut and dark brown, well-defined and striking, margin of bright golden yellow, free and compact in habit. To Mr. Henry Groom, of Ipswich, for *Lord Stanley*, a cross between Sir F. Kelly and Miss Turner, and having a dark bronzy chestnut and fiery red zone, well-defined and bold, and a margin of yellow; good habit, and very effective. To Messrs. Saltmarsh & Son, of Chelmsford, for *Sunrise*, dark and pinkish carmine zone, well-defined and regular, with broad leaf-margin of deep yellow, good habit, and highly attractive; and *Crown Jewel*, with very broad dark and carmine well-defined zone, and wide leaf-margin of gold, a very bold and showy kind. Both these varieties were shown as large plants, and it was noticeable how well preserved was the leaf-marking even on the very oldest leaf. To Mr. Langlois, of Jersey, for *Prince Leopold*, a medium-sized highly coloured variety. Some remarkably well-grown and finely coloured Golden yearlings were produced by Messrs. Carter & Co., of Sydenham. The foregoing, it will be seen, all belong to the Golden-edged section of the group. Comparatively few new Silver-edged Zonals were produced, and of them none that were both sufficiently developed and sufficiently meritorious to merit the distinction of an award.

Among Golden Bicolor Zonals, Mr. Wills, of Huntroyde Park, Burnley, had some splendid things. First-class certificates were awarded to *Her Majesty*, having a greenish golden leaf-ground, with broad zone of bronze,

* We use the term "Variegated Zonal," and for the sake of uniformity recommend its general adoption, as proposed in the *Gardeners' Chronicle*, instead of "Tricolor," which latter name is both pre-occupied and incorrect.—Eds.

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very distinctly and handsomely laid on, foliage large and stout, a very fine variety; and *Beauty of Ribblesdale*, bright golden green, with narrowish well-defined vandyked zone of yellowish bronze, large bold leaves, and excellent habit. The following, in the same way, were also fine examples: —*Model*, *Beauty of Calderdale*, *Princess Alice*, and *Perilla*. All these were large and handsome specimens, that promise to make most effective bedders.

Quo.

THE EFFECTS OF THE FROST OF JANUARY, 1867.

The temperature to-day (May 7th), has been 84° in the shade, and the hot bright sun is bringing out the effects of the frost into much stronger relief. Many of the Coniferous plants before mentioned (see pp. 83, 94) as only slightly injured, are now quite dead; several standard Roses have gone off within the last week; and, in fact we are in a position now to be able to calculate with some degree of certainty as to the real amount of damage inflicted.

In resuming my remarks, I am very sorry to have to record some sad losses in the Cypress tribe. Prominent amongst these stands the beautiful Cupressus Goveniana, from California, not one plant of which is spared to us, thus adding another proof to that afforded by Pinus insignis, that all the Californian species are not alike hardy. Cupressus macrocarpa, also from California, is very much injured, and in some few instances quite killed; but a large one, upwards of 30 feet high, is uninjured. Cupressus thurifera and thurifera elegans from Mexico are quite killed. Several very fine trees of Cupressus torulosa, one nearly 40 feet high, are all gone. As this latter is an Indian species, it could scarcely be expected to survive where a Californian species had been obliged to succumb. This closes the list of our losses in the Coniferous family, and a sad blank they have produced wherever they have been planted in conspicuous positions for the attainment of certain effects. Sad as the tale is, however, I think we may rejoice that there are so many beautiful things left, which are perfectly reliable for their hardiness, and to which we must for the future look for effective planting.

Amongst the minor losses occasioned by the frost are all the Noisette and Tea-scented Roses, as well as several Bourbon and climbing Roses, all of which were killed to the ground; the greater portion of them are indeed breaking up more or less vigorously, though the hot sun appears too much for many of them, as I perceive that several have gone back within the last week. In standards, as I before observed, several have failed to respond to the demand made upon them by the great increase of temperature, and I notice to-day that there are no signs of the white Banksian Rose breaking again. Hybrid Rhododendrons are very much injured indeed. Some of the earlier crosses with the Indian arboreum are quite killed, and of the later crosses, I observe that the nearer they approach either in foliage or habit to the Indian type, the more they are injured. I believe, also, that the bloom of almost all the varieties will be found very deficient, both in quality and quantity. Cotoneaster Simmonsii appears to be hardier than rotundifolia, or microphylla, as it is uninjured, while the latter are killed to the ground, but are breaking again. A sad loss is a very fine plant of Fabiana imbricata, 15 feet high, and which has stood in the same place for twenty-five years untouched; it always flowered very profusely, and, when in bloom was greatly admired. Near it, and against a south wall, stood a large plant

of Cerasus ilicifolia, which is quite killed, as are also Ceanothus papillosus and C. azureus, each about 10 feet high. Lonicera flexuosa is dead to the ground, but will break again. Three fine plants of Desfontainea spinosa are killed; also a nice plant of Ligustrum japonicum; and a Stauntonia latifolia, which had grown and flourished well for five years in the open air.

A few gems have, however, come out uninjured, and amongst them none are more deserving of prominent mention than Azalea amœna, some beautiful dwarf bushes of which are now a mass of bloom, and are very charming. This plant ought to be more extensively used, as it is very tractable and easily propagated. Another beautiful thing which I think cannot be sufficiently appreciated is the Skimmia japonica. Some plants at this place have been quite a feature for the last eight months; and during the frost the branches covered with bright scarlet berries, protruded above the snow, and seemed to defy the frost, looking quite cheering in the midst of the desolation by which they were surrounded. I raised my plants from seed. They are about sixteen years old, and several of them 2 feet high and 2 feet through. The berries for the forthcoming year are already set in great abundance. The plants are certainly slow-growing, but will well repay waiting for, as they want no attention, but simply to be let alone when once they are planted out. I sowed my seed in a pan which was placed in a cold pit, where it remained for twelve months. The young plants were then potted off, and still kept in the cold pit for another year. They were then planted in a bed of peat and loam in rather a damp situation, and remained there about three years, when they were finally transplanted into an American border among some Azaleas and Kalmias, where they have flourished so well as to have become objects of great interest during the dreary months of the year. The birds do not touch the berries, and they are so persistent as to keep up their bright scarlet appearance for at least eight months. The same cannot be said of the beautiful Hollies at this place, which are generally stripped of their berries in a week, on the approach of hard weather.

Redleaf. JOHN COX.

NEW PLANTS.

UNDER this heading we propose to take a glance at the subjects shown at South Kensington on the occasion of the New Plant Show of the 7th ult., a show which, combining the interest of the special groups of novelties with the brilliant display of other well-selected objects which had been invited to support them, produced a scene of beauty and of horticultural interest far beyond that which is ordinarily yielded by one of the minor shows.

The best six New Plants sent out in 1865 or 1866 came first on the list of invitations. Here Messrs. Veitch & Sons, Mr. Bull, and Mr. Williams competed, the two medals offered going to the two former. Messrs. Veitch showed Maranta Veitchiana and M. roseo-picta, Dieffenbachia Weirii, Begonia Pearcei, Verschaffeltia splendida, and the beautiful hardy Primula cortusoides amœna, which seems to gain in beauty each succeeding season. Mr. Bull showed Verschaffeltia splendida, Fittonia argyroneura, Bertolonia guttata, Anthurium regale, Zamia villosa, and Maranta roseo-picta. The more important subjects in Mr. Williams's group were Maranta Lindeniana, Phormium tenax variegata, Dracæna sanguinea, and Dieffenbachia Weirii. The medals for the best six New Plants sent out in 1867 were contended for by Messrs. Veitch and Mr. Bull, the first place being assigned to the former,

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who showed Sanchezia nobilis variegata, Dieffenbachia Pearcei, Lomaria ciliata, Coleus Veitchii, Panicum variegatum, and Hypocyrta brevicalyx; while the latter produced Dichorisandra mosaica and D. undata, Maranta illustris, Bignonia ornata, Adiantum Lindenii, and Agave macracantha. The best New Plant shown for the first time in flower was furnished by Mr. Bull, and was his recently imported Dalechampia Roezliana rosea, Messrs. Veitch showing against it the very distinct Begonia boliviensis. The best new foliage plant not previously shown was a very handsome Indian Alocasia with green and chocolate leaves, Mr. Bull showing against it a handsome East Indian Palm, Ptychosperma regalis. The best garden Seedling was a hybrid Cattleya from Messrs. Veitch, the antagonistic subjects being Rhododendron Henryanum, and an Indian Azalea called Charmer. Some of these we will now notice more in detail.

As being appropriate to the bedding-out season, we resume with the *Coleus Veitchii*, which is a free-growing plant having more of the stout vigorous habit of C. Gibsoni than that of C. Verschaffeltii. Its leaves are flat, ovately heart-shaped, of a velvety brown purple on the disk with a narrow edge of bright green. In its class it must be regarded as an effective plant, as the accompanying figure of it will show, and we think from its appearance that it is likely to be useful both in-doors and out. We owe to Mr. J. G. Veitch the introduction of this novelty, as also that of C. Gibsoni above

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alluded to, both of them, moreover, having been found in New Caledonia. *Sanchezia nobilis variegata*, one of the finest novelties of the season, we shall take another opportunity to describe; meanwhile no grower of stove plants can do wrong in obtaining it. The *Marantas* of the above groups will be found noticed in a separate article (p. 124). *Dalechampia Roezliana rosea* (p. 80), *Lomaria ciliata* (p. 39), and *Dichorisandra mosaica* (p. 38), we have already described. The companion to the latter, *D. undata*, is of less interest, though the dark green leaves longitudinally banded with grey, are curiously crimped in a series of transverse undulations. Messrs. Veitch's *Begonia boliviensis*, a native, as its name implies, of Bolivia, promises to be a useful decorative plant, and is certainly very distinct. It is a herbaceous tuberous-rooted species, of dwarf branching habit, with narrowly lanceolate and very unequal-sided leaves, and drooping orange scarlet flowers, of which the sepals and the narrower petals are oblong-lanceolate, an inch or more in length, while the filaments of the stamens are united into a column.

Griffinia hyacinthina maxima (Flore des Serres, t. 1667-8), is, according to M. Van Houtte's figure, a very great improvement on the specific type which was met with in cultivation some years since. The new form is said to be from Brazil, and is fully twice as large as the older one in every part, the flowers, which resemble those of the old form in having some of their segments tipped and edged with blue, measuring over 4 inches across. It has, too, a stout bulb with a long tapered neck, and hence will probably be found less difficult to cultivate. Mr. Williams has flowered the *Agave schidigera* (Bot. Mag., t. 5641), a Mexican species, the margins of whose leaves throw off curious ribbon-like white filaments, closely resembling carpenters' shavings. Mr. Fitch's drawing represents it as producing a simple erect flowering stem, 6 feet high, the upper part of which becomes a cylindrical spike of smallish and not very crowded yellowish green flowers. The plant is nearly related to A. filifera, the two being, from their symmetry of growth and white variegation, amongst the most ornamental of their singular race. We may add that a beautiful coloured figure of *Dalechampia Roezliana rosea* has been published in the "Botanical Magazine" (t. 5640), and another of *Magnolia Lennei*, figured by us in our volume for 1864, in the "Flore des Serres (t. 1693-4). This last is there stated to be of Italian origin, and to be the offspring of M. Yulan and M. purpurea.

Among Orchids there is but little to record. The most important is *Odontoglossum triumphans*, a New Grenada species, for the use of the figure of which on the opposite page we are indebted to the editors of the *Gardeners' Chronicle*. The flowers, which it will be seen, are of large size, have a pure golden yellow ground, and are marked by dark cinnamon brown blotches, while the lip is usually almost white, marked also with brownish blotches; the flowers, however, vary in tint and in marking, as is found to be the case with many other Orchids, a very notable example of which we have lately alluded to in Cattleya Warscewiczii. The Guatemalan *Epidendrum cnemidophorum*, which has pendent racemes of large flowers hanging from the ends of the long reed-like stems, proves to be a rather handsome acquisition, the flowers being yellowish and richly spotted, and has recently been exhibited from Oulton Park. Another species of the same genus, *Epidendrum eburneum* (Bot. Mag., t. 5643), from Panama, flowered by T. R. Tuffnell, Esq., of Spring Grove, proves to be a rather showy plant, its broadly cordate ivory white lip being conspicuous; but it does not reach the highest rank in this aristocratic family.

Of Hardy Plants M. Van Houtte figures the very beautiful *Dodecatheon*

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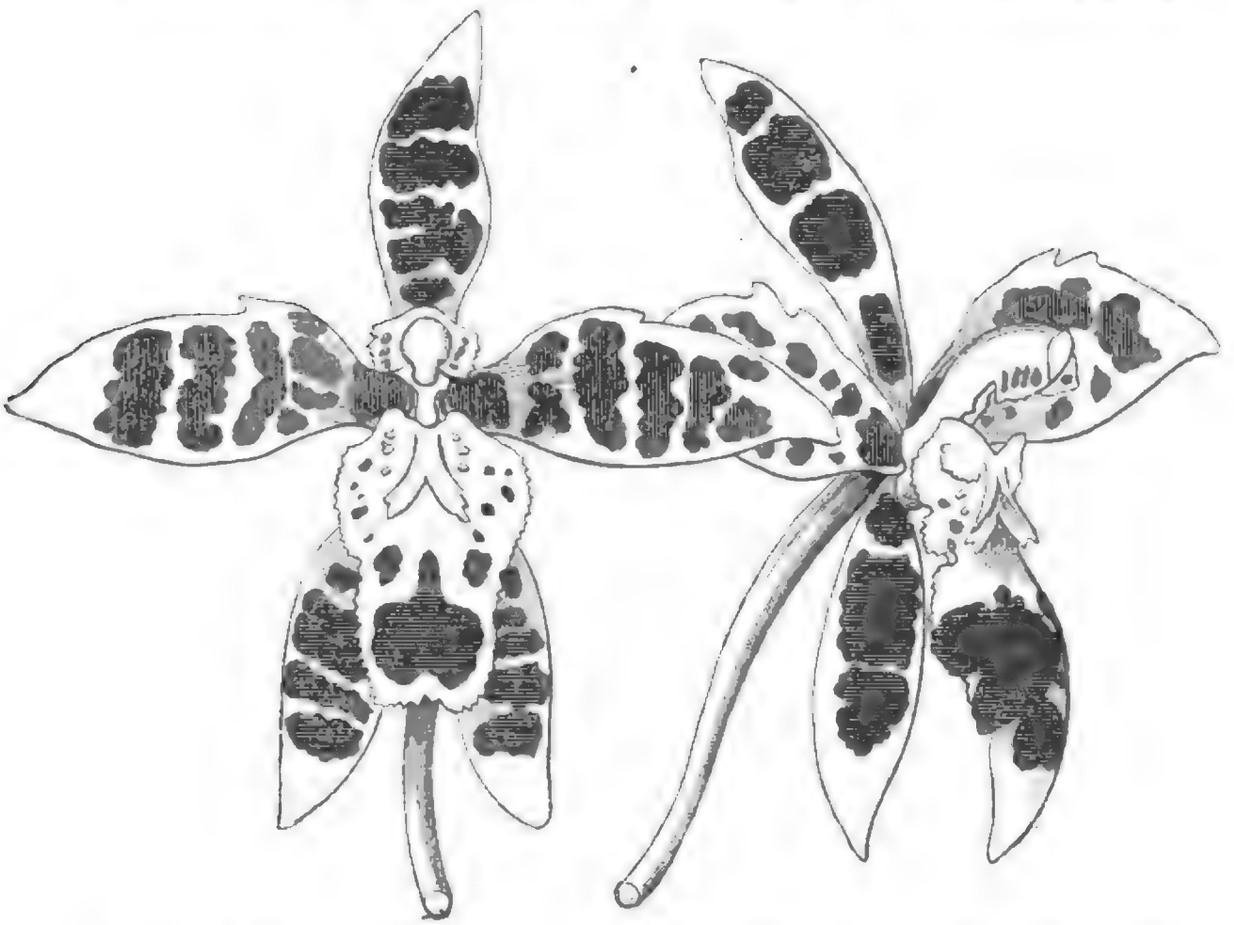
Jeffreyi (Flore des Serres, t. 1662), of the Rocky Mountains, and which appears to have been imported thence to the Glasnevin garden. It is more vigorous than D. Meadia, throwing up abundance of erect lanceolate sub-



spathulate entire leaves a foot or more in length, and a profusion of large umbels of showy rosy-purple flowers, which are paler towards the orifice, where they are marked with a yellow ring in contact with the rich chocolate purple point. This, as M. Van Houtte remarks, is the giant of the genus.

M.

ÆCHMEAS: HOW TO FLOWER THEM FREELY.

The subjects of the present remarks are exotics, equal if not superior in merit to the Kalosanthes, which I have previously noticed. They are thoroughly distinct—even tropical in their aspect; they are also easy of culture, endure long in bloom, and are capable of withstanding a very large amount of harsh, ungenial treatment.

The Æchmeas are stove herbaceous perennials of comparatively recent introduction; but from the ready manner in which they may be propagated, and the desire of all who see them in bloom to become possessed of them, they have become very extensively distributed. No great amount of success, however, would seem to have followed this general desire to become possessors of them, as to see them growing and flowering well is the exception rather than the rule. This is too generally attributed to a deficiency of heat, than which no greater mistake can be made.

To do them justice they must have, when freely growing, an atmosphere

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well charged with humidity, and an average temperature of 60° to 75°. They require little or no shading. This, an average stove temperature about April, at which time they are forming fresh shoots, is quite sufficient to perfect their growth. This accomplished, which in a general way will carry them on to about the middle of May or the beginning of June, the customary aridity of their native habitats must be artificially imitated. When it is desired to make specimen plants produce all the flowers possible, place them in the most exposed, the hottest, and the driest position in the stove, and withhold water from them entirely. In this way their vital energies are to be taxed for a month or six weeks, or, indeed, until they show obvious symptoms of suffering, and this will be found to induce them to form embryo flower-buds at the bottom of their cup-like growths. When this check has induced them to assume a state preparatory to flowering, treatment exactly the reverse of that last described, must be suddenly entered upon. Abundance of water must be given to the roots, and the leaves must be syringed frequently; but water should not be allowed at this stage to stand in the cup-like formations previously alluded to, as it not unfrequently causes the embryo flower-spikes to rot away where young.

I have long practised another very simple method of flowering these plants in small pots, and in a form most suitable for in-door decoration, whether for the drawing-room or dinner table, for either of which they are well adapted. About the middle of May, or between that and the second or third week in June, young shoots of the current season's growth are to be taken from the parent plant by cutting them off at the base, and afterwards laying them on their sides in any convenient position in the stove, Cucumber-house, or frame, for a fortnight or three weeks, after which they are to be potted singly and firmly into 48-sized pots, in a compost formed of peat, potsherds, and silver sand. They are to be treated subsequently in every respect like established plants. They come into flower from November to January, at a time when good plants suitable for in-door decoration are scarce. It should be well understood that the object in thus laying them upon their sides for a time, is to induce the formation of the embryo flowers, and that the check thus given tends to secure this desideratum. By treating Bilbergias and Tillandsias in a similar manner a like success may be realised.

Digswell. WILLIAM EARLEY.

ZONAL PELARGONIUMS *versus* CHRYSANTHEMUMS.

A LITTLE leisure has now permitted me to thank Mr. Higgs for his friendly criticism. I beg to assure him that I have given his objections due consideration; but his arguments have failed to convince me that I have in the slightest degree been guilty of misrepresentation. The facts which I have stated are probably too revolutionary to satisfy those who cling to the past, and stand in the gap with outstretched arms to prevent the onward march of improvement. Neither, perhaps, is it any part of wisdom to attempt to change the current of thought that overpowers the mind in such cases, for before a truth is admitted, it must have undergone a course of probation. To accomplish this, time and reflection are necessary; and judging from the moderate and candid tone of Mr. Higgs's communication, I doubt not that light enough will yet be given him to swim with the stream, which has by its innate force cut out a new channel, and by its momentum is breaking down obstructions, rooting out feeble objections, and expanding its power on all sides.

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In the course of a few years we shall find the Chrysanthemum cribbed in a corner of our conservatories, or, what is more likely, handed over to open-air culture. Had Mr. Higgs but seen the magnificent display of Zonal Pelargoniums at Tortworth last autumn and winter—and they were equally fine in other gardens that I visited—I feel persuaded that the Chrysanthemum would have sunk 95 per cent. in his estimation. I am not opposed to this latter plant; on the contrary, I value it for what it is worth, but I refuse to give it that attention and space which ought to be bestowed upon others of a very superior quality.

An uneven balance cannot be adjusted by either the freaks of fashion or fancy, neither can it be regulated by mere emotions, or by the imaginings or the varied organisation of individual minds. Whatever changes occur among new comers, to be durable and beneficial they must rest upon the excellency of an object, or a class of objects, over others; then, and not till then, will they continue to exercise a lasting and determinate influence over the mind. Speaking more especially of plants, whether we estimate more highly the grouping of colour, or the beauty of individual form, it is not easy to express how the innate images of fascination or dislike are formed, or how they operate upon the mental faculty, as we are destitute of language sufficiently precise to enable us accurately to define the different forms of thought that float through the mind. Still though undescribable, they can only produce pleasurable emotions when the objects that give them birth are harmoniously arranged.

The request that I should offer an explanation why I value so highly the Zonal Pelargonium and condemn the Chrysanthemum is a very reasonable one, to which I readily accede. The difficulty is by no means great, nor need the vindication be long or laboured. What quality, then, does the Chrysanthemum possess to deserve the high panegyrics which have been bestowed on it? We have a heavy mass of uninteresting foliage, coarse in shape, and uniform in colour, with no variation to relieve the eye. The branches, too, have to be supported by an endless number of stakes, which when accurately arranged may delight the most rigid formalist, but which refined taste rejects. The Chrysanthemum, moreover, possesses but a limited range of colour; and owing to the position of the flowers, stuck as they are on the pinnacle of the branches, the most ingenious contrivance fails in the effort to produce more than individuality.

What are the preponderating merits of the Zonal Pelargonium? We shall find at the very threshold, staring us fully in the face, such an array of beauty, such a galaxy of colour, as will at once rivet our feelings of admiration, these colours shading off into every imaginable gradation, and producing a harmony of effect, when properly arranged, such as no other class of plants can be made to yield during the later portion of the year. What these colours are it is unnecessary for me to describe, as that can be readily ascertained by reference to a florist's catalogue. Then we may add further variety of colour, by introducing Pelargoniums with variegated foliage, or those belonging to the bi-coloured and marbled-leaved sections. A few plants of Centaurea candidissima, introduced here and there, will, moreover, greatly assist to relieve and neutralise the other colours.

Now, I feel quite justified in reasserting, that the Chrysanthemum, as a conservatory plant, is fast being superseded. I know some gardens in which its cultivation has been already discontinued, except in the open air.

Tortworth Court. ALEXANDER CRAMB.

NOVELTIES, &c., AT FLOWER SHOWS.

The Royal Botanic Society's third Spring Show took place on April 27th, and still had the disadvantage of unpropitious weather. There was a pretty and interesting show notwithstanding.

Mr. W. Bull had a rare group including a considerable number of New Plants, and got first-class certificates for the following:—*Coprosma Baueriana variegata*, a very pretty New Zealand shrub, having inversely ovate green leaves, with a broad yellow edge; *Dioscorea discolor variegata*, a very handsome variety, having rich-looking leaves, on which were mingled brown and green spots; *Adiantum Lindenii*, a fine stove Fern; *Terminalia elegans*, with trifid leaves of a pale green colour, veined with red; and two very beautiful varieties of *Anœctochilus—Petola marmorea*, and *Dayi*, the first having leaves of a dark chocolate green, handsomely marked with pale green; the latter deep green, having reddish veins. Mr. B. S. Williams got the same award for *Lomariopsis heteromorpha*, a taking greenhouse Fern of creeping habit, and for *Amaryllis aurantiaca*, having large pale orange scarlet flowers, with a whitish sulphur circular throat, a bold-looking and striking variety. Both Messrs. Williams and Bull got second-class certificates for *Azalea Queen of Roses*, the flowers of a rosy pink colour, large and stout, the upper segments being faintly spotted with pale rosy crimson—a very pleasing shade of colour, but the flowers somewhat uneven. Mr. Williams had grown his specimen better than Mr. Bull. Messrs. Ivery and Son, of Dorking, had a basketful of their new *Azalea Fascination*, a very pretty decorative variety indeed—colour deep pink edged with white, the upper petals blotched with rosy crimson; and Mr. Bull a pan of a pretty new Forget-me-not, *Myosotis Impératrice Elisabeth*, with a very dwarf habit, the flowers pale blue with a rosy eye.

Mr. James, gardener to W. F. Watson, Esq., had some Pansies in pots, grown in a style that reminded one of the most palmy days of this charming though too much neglected flower. Out of that goodly number of Pansy-growers that erstwhile were to be met with about London, Mr. James is the only one left to us, and right well does he represent what used to be. His varieties in pots were:—*Rev. H. Dombrain*, *Dux*, *Imperial Prince*, and *Masterpiece*, dark selfs; *Vesta*, pale yellow self; *Chancellor*, *J. B. Downie*, *Wm. Austin*, and *A. Wharmond*, yellow grounds; and *Cupid*, *Lady E. Stanley*, and *Miss E. Cochrane*, white grounds. Some cut blooms in excellent condition were also shown by Mr. James. Messrs. Downie Laird & Laing had a box of cut blooms of their new bedder, *Imperial Blue*, a variety having a rich depth of colour, and a large regular dark blotch; the flowers were all well coloured, and of good size. It appears to stand the sun remarkably well. Mr. Wiggins, gardener to W. Beck, Esq., of Isleworth, had a collection of Polyanthuses that were very attractive indeed. As border flowers they are highly valuable in the spring; and surely their simple beauty would be much more appreciated if a trial were given them.

The show of Auriculas was very attractive. To indicate how easily the fine Alpine varieties can be had—it is simply necessary to sow the seed in a pan or box, placing the same in a cold frame, and if the weather be hot, covering the pan with a piece of glass to prevent the soil from baking. As soon as the plants are large enough they can be put into store pots, *i. e.*, three or four plants to a pot until they become well established, and then finally planted out on a shady border, rather raised, for flowering.

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The special Prize Show at the Royal Horticultural Gardens, South Kensington, on May 7th, came in weather so hot and oppressive, that for once July appeared to merge into the early part of May. First-class certificates were awarded to Mr. Muir, gardener to Sir P. M. Egerton, Bart., M.P., Oulton Park, Tarporley, for *Epidendrum cnemidophorum;* to Messrs. Veitch & Sons for a species of *Alocasia* from the East Indies, for a hybrid *Cattleya*, and for the very novel *Begonia boliviensis;* to Messrs. Low & Co. for a white variety of *Odontoglossum citrosmum;* to Messrs. Backhouse & Son for *Iberis carnosa*, a very dwarf, free-blooming species, suitable for rockwork; to Mr. W. Bull for *Ptychosperma regalis*, a handsome East Indian Palm; and to Mr. W. Paul for a slender *Ulmus*, or *Planera*, from Japan. Messrs. Rollisson & Sons had two seedling *Ericas: E. tintinnabula*, with short pale pink flowers, free, and somewhat fragrant, awarded a first-class certificate; and *E. tubiformis*, with waxy reddish crimson tubes, awarded a second-class certificate. Messrs. Low had in addition some other rare Orchids, and a group of nearly one hundred plants of *Cattleya citrina*, that will live long in the remembrance of those who saw them. There was a fair proportion of variation noticeable, especially in the colouring of the lip, and the flowers emitted a rich fragrance.

In the way of Pelargoniums, Mr. Turner was awarded first-class certificates for four Fancy varieties—viz., *Perfection*, having fine form and substance; *Brightness*, rosy carmine, a very pleasing shade of colour, and flowers of good form; *Pink Perfection*, bright rosy pink, bold and striking; and *Belle of the Season*, pale ground, with rosy carmine blotches, good form, and free-blooming. *Maid Marian* and *Marmion*, both very useful kinds, were awarded second-class certificates. Mr. William Paul had a first-class certificate for *Dr. Hogg*, a zonal variety, figured in our last year's volume; and *Waltham Nosegay*, colour vivid crimson, a very free-blooming and showy variety, with plain foliage. Messrs. Downie Laird & Laing had the same award for Nosegay Pelargonium *Rose Stella*, a great acquisition, the habit compact, and having large trusses of rosy pink flowers, of fine quality.

R. D.

OUR MONTHLY CHRONICLE.

Gardeners' Examinations.—The Royal Horticultural Society's Examinations for young gardeners for 1867, are fixed to take place on the 3rd and 4th of July, and on the 30th and 31st of December. They will be based upon the Programme issued by the Society of Arts for the present year, the particulars of which may be had on application to the Assistant Secretary of the Royal Horticultural Society, South Kensington, W.

The Rev. M. J. Berkeley.—Among the most satisfactory of the Civil List Pensions recently granted, is one of £100 a-year to the Rev. Miles Joseph Berkeley, in acknowledgment of the eminent services he has rendered as a botanist both to practical horticulture and agriculture. These, together with his unrivalled acquaintance with Cryptogamic plants, towards the diffusion of a knowledge of which he has done so much, amply entitle him to such a distinction. Long may he live to enjoy it!

Chinese Primroses.—Mr. W. Paul, in his recent lecture on spring flowers at South Kensington, mentions a curious and interesting fact in the history of this plant. There is a tendency in most plants to vary in form, size, and colour, when removed from their natural or wild state and subjected to cultivation. The type of the Chinese Primrose was pink or lilac, and scarcely more than one-fourth of the present size. By culture the size was increased, and by watching for variations in form and colour, and selecting such as the parents of future races, the change went on till a break—that is, a departure from the normal form, was at length produced. Thus the white variety was obtained, but it was found that seeds saved from the red Primula would sometimes produce both red and white-flowered plants, and seeds saved from white Primulas would do the same, while the seedlings varied greatly in size, colour, and form. The break was retained, but the result was

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uncertain. Then year after year plants of the altered and more approved form, closely resembling each other, were selected and placed apart, and from these alone seeds were saved until the altered form was fixed—that is, seed saved from red Primulas produced, with almost unerring certainty, red-flowered varieties, and seed saved from white Primulas white-flowered varieties, both preserving the increased size, altered forms, and clear decided colours of their immediate progenitors.

Propagating-house.—Writing of the arrangements at the celebrated garden of the City of Paris, at La Muette, a correspondent of the *Gardeners' Chronicle* points out that the propagating is not done as we do it. No pans are used in the house, but very minute pots, a shade larger than a thimble, and into each a cutting is placed, the little pots placed on the tan, and covered with large circular bell-glasses. The greater part of the house is occupied with these, all of a size. There are some special arrangements for propagating the more difficult subjects, and among these an improvement—bell-glasses, somewhat of the ordinary type, with an aperture in the top about 2 inches in diameter, into which a moisture-absorbing bit of sponge is squeezed. Nothing could be more business-like than the arrangements.

Variegated Borecoles.—In reference to these coloured Kales, which are largely used in some gardens about Edinburgh for winter decoration, Mr. Peter Robertson has recorded his experience that they are best grown on dry rich soil, and fully exposed to sun and air. To get them dwarf the only way is to breed from dwarf plants. It is a curious fact that the whites and magentas do not readily cross, though grown beside each other; but one plant of either will taint an acre of pure green or common purple German Greens.

Chirk Castle Black Stone Turnip.—This variety of the common Turnip, itself hardier than the Swede Turnip, is highly spoken of in the midland district. Though one of the white Turnips, the skin is quite black and very thick; it is of excellent quality, and is highly recommended for a late crop; indeed as a Turnip to follow early Potatos, where grown for market, it is said to be very valuable. Sown as late as the end of August it produces fine roots, but sown a month earlier it produces a highly remunerative crop either for storing or immediate consumption. This, is one useful article added to our vegetable list.

Terrestrial Orchids.—Though the culture of these curious plants, especially the tuber-bearing sorts, can be carried on, under certain conditions with perfect success, it often fails through giving them a light peat soil mixed with moss. Dr. Regel has recently pointed out that he finds them to succeed best when planted in open turfy loam, without admixture of any other earth. The different kinds of Bletia, Sobralia, Disa, Stenorhynchus, Calanthe, &c., do well, he says, with this treatment. Bletia hyacinthina, and its varieties Gebina and albo-striata, pretty spring-blooming plants for the greenhouse or forcing-house, are particularly recommended for this mode of culture.

Calabrian Pine.—The late M. Vilmorin, after having tried nearly every Pine he could obtain, found this variety (*P. Laricio calabrica*), to be the most suitable for profitable planting. In a wood of Oaks near his house occur some characteristic examples which were planted ten years later than the Oaks (about 1830), and are now from 12 to 20 feet above their tops, forming perfectly handsome trees, fit any day to cut down and furnish good-sized planks, and wood for important purposes. The soil is the poorest in the country, gritty and gravelly. The merit of the Calabrian Pine cannot be too widely known, and doubtless it is as suitable for the British Isles as for France. There are large plantations of it in various parts of M. Vilmorin's estate, all exhibiting its clean vigorous growth, and general superiority.

Golden-leaved Stonecrop. — Mr. W. Dean, of Shipley, writes:—"When I was in Messrs. Lawson & Son's nursery last winter or early in spring, I was struck with a beautiful gold-tipped variety of the common Stonecrop, which gave so bright an appearance in a mass, that I at once secured and took home a batch, and in about fifty years' time I shall bring it out as one of the horticultural wonders of the day! By that time its value will be appreciated! No one need fear losing it after they get it; for, like the common Stonecrop, you cannot lose it. I have a mass of it now, which even in the midst of our smoky district sparkles amongst the dingy green which surrounds it. It will have to be advertised at a guinea a-plant before the public will believe in it!"

Preserving Apples.—We learn from the German papers, that two years ago a farmer in the Palatinate, found in the spring an Apple in the most perfect state of preservation, that had been lying all the winter in a heap of leaves of the Maple tree in his garden. In the autumn he therefore packed his stock of Apples in casks with dried leaves, and in the following spring found them in the same state of preservation, and as firm and juicy as when first plucked.

The King of Striped Hollies.—The French journals mention a tree, growing in in the garden of the Deaf and Dumb School of Nantes, which is probably one of the largest which exist. It belongs to the finest variety, with large plain leaves, edged with gold. It is 26 feet high, and pyramidal or conical in shape, and its branches, which touch the ground, are so close that it is impossible to see through it. The proprietor of this fine plant asks 1000 francs for it.

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OBITUARY.

Mr. Dobson, sen., of Woodlands Nursery, Isleworth, died on the 3rd ult., after a long and severe illness. As a cultivator and raiser of Pelargoniums, Cinerarias, and other florists' flowers, while gardener to the late E. Beck, Esq., and subsequently at his nursery at Isleworth, Mr. Dobson's skill, perseverance, and success, are well-known amongst horticulturists; and his productions, whether seedling novelties or specimens of culture, have always been of a highly creditable character.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

The heat of the sun may now be expected to have great power, and should be provided against. To most *Orchids* shading is indispensable. *Stove Plants*, too, being natives of the tropics, where the period from sunrise to sunset is limited to little more than twelve hours, instead of extending as with us to sixteen or more, are benefited by some degree of shade, especially those of them which have naturally some transient relief from continued intensity of light, by overtopping vegetation. By means of judicious shading and syringing, a moist atmosphere will be maintained. Due attention should at the same time be given to apply sufficient moisture at the roots, but even in the growing season it is not advisable to have the soil constantly saturated. If the soil at the same time is in a proper condition as regards looseness, the roots will extract from it a richer moisture to form more substantial tissues, than when they are deluged with water.

GREENHOUSE.

For the inmates of this house the sun's rays will now afford sufficient heat, and frequently their intensity will require to be mitigated by a slight shading. Earlier or later in the month, most of the hardwooded plants may be turned out of doors, or into pits and frames; among these, *Heaths* and *Epacrises* may be mentioned. These may be replaced by *Fuchsias*, *Neriums*, *Crassulas*, *Pelargoniums*, and various stove plants coming from considerable elevations within the tropics. Thus the greenhouse can still be kept amply furnished and gay. Let *Camellias* have plenty of air and light, in order to firm their wood, and induce the formation of blossom-buds.

CONSERVATORY.

Some large plants in pots or tubs, as *Acacias*, &c., may be set in a sheltered place out of doors if the weather permit. *Camellias*, likewise, that have finished their growth and have formed their blossom-buds, may be placed out in a shaded situation. The removal of a number of large specimens will make room for such plants coming into flower as will maintain a satisfactory display. Shade in hot weather, and give air both night and day. Attend to watering.

PITS AND FRAMES.

From these the *Bedding plants* will have been removed, and the space they have occupied will be at command for potted-off seedlings, and for striking cuttings. These structures are useful for forwarding flowering plants, or, on the contrary, for retarding to some extent where that is desirable. In short, a range of pits can be divided so as to form compartments more especially adapted for the particular requirements of various classes of plants.

FORCING.

Vines.—In the forward vinery where the fruit is ripe, the air must be kept dry. Stop the shoots, except the leaders, of later Vines, and tie them in. Water with manure water, alternately with rain water, and let it be nearly of the same temperature as the soil of the border. The temperature of the house by day should be 70° to 80°; at night, 65° to 70°. Muscats may have 10° higher. Give plenty of air, but syringe the foliage, and moisten the paths and surface of the border so as to maintain a moist atmosphere in the house, with plenty of air, till the Grapes are colouring. Reduce laterals, but if well-coloured fruit are esteemed, meddle not with the fully expanded leaves on the bearing shoots; for in them, by sunlight acting directly or indirectly, the crude sap is transformed into all the desirable properties which the fruits possess. *Pines.*—Give abundance of heat and moisture. Syringe the plants, walls, and paths towards 6 P.M., and then shut up. Shift any plants that require more room, or are not thriving sufficiently well. Gather *Peaches* by laying hold so that the fruit shall be untouched in the hollow of the hand, whilst the padded ends of all the fingers and thumb surround the base; and thus with but slight pressure equally divided among these five soft tips, the fruit, though perfectly ripe, may be removed without the slightest bruise. No fruit-gatherer, though lined with silk velvet, is equal to this natural arrangement. Give plenty of air, and if the foliage can be inured gradually to bear the direct rays of the sun, the flavour of the fruit will be greatly enhanced. *Melons.*—As the fruit begins to ripen give plenty of heat and air; of the latter there should be a moderate circulation both night and day, if the nights are not unusually cold. *Figs.*—A great breadth of foliage should not be encouraged, nor are spongy luxuriant shoots desirable. The foli-

age should be firm and thick in substance, rather than broad, the former resulting from plenty of air, enough water at all times, but no superabundance; then the wood will be firm, and the fruit will hold on.

KITCHEN GARDEN.

Frequently stir the surface of the soil where crops are growing, for by so doing their growth will be promoted, and less water will be required. Loose soil has the effect of mulching, for which, in fact, dry dust has been experimentally used and found as effectual as litter. Both frost and drought penetrate farther where the surface is compact than where it is loose. In watering it is best to moisten the soil all over, with a wide rose, and not merely to pour some water at the neck of each plant, for by so doing if some of the spongioles extend beyond the circuit of the moisture into the surrounding dry medium, the plants must suffer. These spongioles have an attraction for moisture, and if this is diffused in the soil the roots have a tendency to grow towards it, and prefer taking it by degrees rather than to be plunged into it at once. Sow *Beans* and *Peas* for latest crops, *Carrots* for drawing young, and *Cucumbers* for pickling; sow also the main winter crop of *Turnips*. Discontinue cutting *Asparagus*, and give the beds a top-dressing of common salt. It will act as manure, and at the same time will kill the weeds. Plant out *Cabbages*, *Savoys*, and *Celery*; also the various crops required for succession. Let no plants get drawn up in the seed-beds. Earth-up *Potatos*, forming broad-shouldered drills rather hollow along the top.

FRUIT GARDEN.

Attend to the summer pruning of *Wall trees* so that there be no confusion of the young shoots. These will grow in proportion to the extent of foliage they bear, and the quantity of sap determined towards them, which will be greatest towards the upper buds, the more upright branches, and those that are most vigorous. From this, its natural tendency, it will not readily turn horizontally to right or left, nor into weak branches rather than strong; hence the necessity of artificially diverting the flow from where it is naturally too strong to where it is comparatively weak, if we wish to preserve the balance of vegetation throughout the tree. As regards the *Peach*, its shoots will now be growing rapidly, and will demand close attention. Care should be taken that of those which have this season pushed on each bearing shoot or branch, the lowest should be selected and encouraged for a successional bearing shoot for next year. The others, except the leading shoot of the branch, should be shortened to a length of 3 or 4 inches, commencing with the strongest. In training let the strongest shoots be first nailed in; if too strong they should be inclined from a perpendicular direction, and if this cannot be done without crossing, their extremities may be inclined downwards. On the contrary, branches occupying a horizontal position should have their extremities turned upwards. Pinch in or shorten the shoots of pyramid trees, commencing with those towards the top. See that ties of grafts are loosened before they become too tight. The foreright shoots of wall and espalier *Pear* trees should be shortened to above the sixth leaf, commencing with the strongest or those on the upper part of the tree, and working at intervals down to the lowest. This will tend to equalise the vigour of the branches.

FLOWER GARDEN.

The lawns should be kept regularly mown, and the walks rolled and neatly edged. The verges should be rolled after rain, until they are only a little above the gravel, and then be edged off perfectly straight or even from end to end. If the edgings exhibit a distinct line it is sufficient; they do not require to be like shallow plough-furrows. Plants in borders, requiring sticks, should be early attended to. Thin annuals, which are often sown too thickly; some kinds may be transplanted into vacancies. Make cuttings of *Double Rockets*, *Double Wallflowers*, *Antirrhinums*, &c. Clip hedges, and Box edgings. Do not take up *Bulbs* until the leaves are fully decayed.

FLORISTS' FLOWERS.

Auriculas.—Keep the plants clean from decayed foliage and insects; shade slightly; pot off seedlings; gather seed. *Carnations and Picotees.*—Thin the blossom-buds to two and the centre one; see that the ties are not too tight. *Cinerarias* being now nearly out of flower, should be placed in a cool situation, and when the growth has acquired sufficient firmness, cut down to within 3 inches of the base; dress the surface of the soil with some light compost, and protect from too much wet. Take off cuttings when ready, and put them in pots, which place under glass in a shaded situation, potting them off when rooted, and shifting into larger pots as often as more room is required. Sow seeds for early bloom. *Hollyhocks.*—Propagate as soon as side shoots can be taken off. *Pelargoniums.*—Give air freely, but not so as to cause draughts. Water in the mornings, but sparingly in dull weather, and do not shut up with much moisture. Before the plants are cut down, they should be kept rather dry at the root. Prolong the bloom by careful shading and watering, avoiding a close warm moist atmosphere. Fancy varieties should be struck in a cool frame. *Pansies.*—Put in cuttings. *Pinks.*—Water freely; commence propagating towards the end of the month. *Roses* in pots, supposing them to be in small ones, should be repotted, and placed in a warm greenhouse, or on bottom heat out of doors till September, the wood being then ripened, by gradually withdrawing both heat and moisture. By this means, well-formed plants may be grown 5 or 6 feet high. *Tulips* should be now fully exposed.

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Amaryllis (hippeastrum)
1 H Gibbe — 2 Helena

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NEW VARIETIES OF AMARYLLIS (HIPPEASTRUM).

WITH AN ILLUSTRATION.

The late Dean Herbert, who was a very learned man on all matters relating to bulbous plants, regarded that group of the old genus Amaryllis to which our illustrations belong, as sufficiently distinct to form a separate family, which he named Hippeastrum. Others, including some leading botanists of the present day, regard the differences which exist as of lesser moment, and rank the Hippeasters as a subgenus only. While authorities thus differ, it is obviously unimportant which name is preferred. The more popular one is Amaryllis, which we adopt.

The Durdham Down nurseries of Messrs. Garaway & Co., near Bristol, have long been famed for the cultivation of these Hippeastrum forms of Amaryllis, and also for the production of fine varieties. The splendid A. Akermanni pulcherrima, probably the richest-coloured and finest-shaped variety yet obtained, was raised there some eighteen years since by the late Mr. Mayes, then a member of the firm, and since that time other fine sorts have been added. From some of these, exhibited in the spring of the present year at the Royal Horticultural Society's Meeting at South Kensington, our present illustration has been prepared, and we have to thank Messrs. Garaway & Co. both for samples of the flowers, and for the particulars annexed. The two varieties we have selected were, it appears, raised from other seedlings unnamed :—

Henry Gibbs (*fig.* 1).—This belongs to the vittatum group, upon all the varieties of which it is a great improvement in the perfect definition of the markings. The flowers are of a fine carmine crimson, with a sharply defined white bar down the centre of each segment, and a white margin. They measure 5 inches in expansion, and 4 inches in length, and the perianth segments are elliptic and pointed, the sepaline ones 1¾ inch wide, the petaline narrower.

Helena (*fig.* 2).—This flower bears a strong resemblance to equestris, and is remarkable for its finely-shaped flowers, of a bright orange scarlet, with a dash of crimson, the perianth segments spreading so as to be fully presented to view. The flowers measure 4½ inches in expansion, with a tube 3 inches in length, and the perianth segments are ovate (the lowest one only narrower), and obtusely apiculate. This is probaby the most perfect in shape of any variety known.

Too much cannot be said in praise of the fine hybrid forms of Amaryllis as effective plants for conservatory decoration. They can be had in flower at any required time, and some of the varieties grow so freely that large pots of them can be very speedily had with a little care. In illustration of this fact, we have before us a photograph, taken in March last, of a plant of A. psittacina Johnsoni, which bore twenty-eight flowers. It consisted of a single bulb two years ago, and has now three offsets. The parent bulb has three flower-stems, and the offsets two each, making nine; three stems bear four flowers, four bear three flowers, and two others not opened bear two each, making twenty-eight, fourteen of which were fully expanded when the photograph was taken.

"We find these plants do best," write Messrs. Garaway & Co., "in loam and leaf mould, with a little sand. The pots should be well drained, and the bulbs when growing supplied freely with water. We do not believe in shaking out when at rest, as recommended by some, thinking that the bulb is not improved by having all the healthy roots of the previous year destroyed; neither do we entirely dry them off when at rest. We keep them in a cool place, and water them occasionally, and as they show signs of growth bring them into a greater heat, and treat in the usual way."

We understand it is the intention of Messrs. Garaway & Co. to submit to auction, some time in the course of the ensuing autumn, the greater portion of their stock of named bulbs and flowered seedlings. This would offer an excellent opportunity to those who may be thinking of commencing the cultivation of these very showy and easily managed plants.

M.

MAY, 1867.

By way of an appendix to my remarks on the effects of the severe frost of January, 1867, allow me to place on record a few remarks on the extremes of temperature which characterised the month of May following. A very rapid advance in vegetation generally began about the 3rd, and on the 5th the trees were clothed with the most lovely young foliage, having an infinite variety of tints, caused by the rapid development, which was too forcing to allow them to assume their natural green. Some were golden yellow, some a rich brown, others a delicate primrose—in fact, I observed at the time that it appeared to me far more beautiful than the autumnal tints, on account of the extreme delicacy of appearance which the trees presented. However, when on the 6th the temperature rose to 82° in the shade, on the 7th to 84°, and on the 8th to 88°, the burning sun soon did its work, and rubbed out the beautiful tints, reducing them all to one uniform shade of green. After that came those fearful thunderstorms, with their attendant furious gales and heavy storms of rain, snow, and hail, during which, for the space of ten days, the average day temperature was not more than 48°, and that of the night 32°. This state of things culminated on the 23rd, 24th, and 25th, in very severe morning frosts, during which the thermometer sank to 23°, with what effect on the young and tender vegetation, which the former great heats had caused to be developed, may well be imagined. The young shoots of Rhododendrons, Kalmias, and Azaleas, were many of them killed quite down to the old wood, by which many thousands of heads of bloom will be lost to next year; the beauty of the present year's flowering was also very much curtailed. The young foliage of Ash, Walnut and Chestnut was turned quite black, and the very young wood was killed.

I have also observed in some plantations a few miles from this place, that Oak and Alder trees to a very great extent have all the young growth killed, and that the appearance they present is much the same as if a fire had passed through all the branches; and to-day (June 15th), I noticed in Lord de Lisle's park some large Walnut trees, which are nearly bare of foliage, and if they live must be some years in recovering their former state of health and vigour.

As to fruit crops, one-half the crop of Gooseberries fell off the trees. Pears on standard trees were frozen black where exposed, but where covered by foliage are quite safe; on the walls they were untouched. Apples appear to have suffered more than any fruit, as there was a great abundance of bloom, but I perceive that there is not one-third of an average crop. Strawberries, which were in full bloom and very promising, had all the exposed blossoms turned black, thereby reducing the crop below the average. I had commenced bedding-out in some of the more sheltered parts of the garden, but the plants had been well hardened, and, therefore, did not suffer. Some tenderer things which were undergoing the process of hardening

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suffered very much, although they had the protection of a mat. Scarlet Runners and French Beans were killed to the ground, but some of them are breaking out again.

The last time we had a destructive frost in May, at this place, was on the 8th of May, 1855, when the glass fell to 20°, and Plums, Peaches, and Apricots on walls were frozen quite black, even under good protection, but the foliage was not so much injured then as it is this year, because it had not been unnaturally forced by extreme heat. Altogether I should consider that the changes and vicissitudes of temperature during this month of May, 1867, are unprecedented in the memory of most, if not all, the gardeners of the present generation.

Redleaf. JOHN COX.

FUCHSIA CORALLINA.

THIS, notwithstanding its age, stands, as I consider, unrivalled as a summer decorative plant for lofty houses; though of course, looking at the variety from a florist's point of view, it lacks those properties which constitute a first-class flower. Some plants of it at this place, planted some fifteen years ago in our lofty conservatory, are now as luxuriant as ever, blooming annually all the season through. Some of them are from 15 to 20 feet high. All the attention we give them is comprised in these two points—to apply some good soakings of water in the growing season, and to close prune them during the winter.

Wrotham Park. JOHN EDLINGTON.

NATIVE SINGING BIRDS.

YOUR correspondent "W. P.," in his anxiety for the preservation of our "indigenous singing birds," alleges that they are fast diminishing in numbers. I believe that this is only taking place near cities or large towns, where professional bird-catchers are always on the alert to capture them, and where numbers of senseless men and youths keep prowling about hedges and trees on the look-out for a shot, whenever they have a chance. Now, this is to be lamented; but it is difficult to see how it can be put down unless by the Legislature. As to our singing birds diminishing in country places, where shrubberies and woodlands abound, I am of opinion that this is not the case. After very severe winters great numbers of our small bird perish by the cold and want of food, but in a few years their numbers are again made up.

In the locality from whence I write, the flocks of linnets, finches, blackbirds, thrushes, and starlings have of late years been larger than I have ever known before. The only birds that do not seem to increase are the bullfinches; and this is not to be regretted, for a small flock of them in the spring will do incalculable mischief to the fruit-buds in a very short time. In the beginning of April last, the flocks of starlings that frequented the park and fields here were something extraordinary, for they quite darkened the air when united in flying to their roosting places at night. To see the rapid gyrations of a large flock of them in a grass field where insect food was to be found, was something to look at. After ransacking all the booty to be picked up, they would darken the trees in the neighbourhood with their numbers, and begin a "palaver" of the most noisy kind—no doubt

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arranging the point of attack on the grubs or insects in some other part of the park. This bird is one of our greatest benefactors in destroying grubs, beetles, and wireworms, and never preys upon any fruits or seeds.

As for the blackbirds and thrushes, I am of opinion, that for all that are shot or trapped in their predatory attacks on fruit, their numbers are not so diminished as to cause any alarm to sentimental poetasters or bird-philanthropists. When the number of hawks and other birds of prey was considerable, Nature meant them to be a check on the small birds. Now this balance is disturbed, for gamekeepers have killed or thinned these birds so much that a sparrow-hawk, merlin, kite, or buzzard is hardly ever seen. The greatest pest of all small birds is the sparrow, for he is a born thief, and with his impudence and daring will make his way, and increase, in spite of all the sparrow-clubs in the kingdom. The sparrows are, in general, so secure in the holes and crannies they select in buildings and trees, that they escape better than many other little birds with their eggs and young. As "W. P." is anxious to save the fruit-eating birds, such as blackbirds and thrushes, from being destroyed, let me recommend him a plan I have tried for the last two or three years, and which answers better than setting on boys or lads as herds, for they generally eat more fruit than the birds. I have a terrier dog of the name of "Billy" trained to scamper up and down the rows of Currants and Gooseberries, and find he takes the greatest interest in his work, by scaring all the birds off the bushes, making short work too with all that he finds in the nets. I have only to say as "Tennyson" said to "Maud,"—

> "Come into the garden 'Bill,'
> For the blackbirds and thrushes are there:
> And pegging at fruit with such a will,
> That the bushes will soon be bare,"

And "Billy" will be sure to keep them off as long as he is on duty.

Welbeck. WILLIAM TILLERY.

PROPERTIES OF VARIEGATED ZONAL PELARGONIUMS.

WE have already briefly stated our reason for adopting the designation Variegated Zonal, instead of Tricolor, for the varieties with beautiful parti-coloured leaves, which are now becoming so fashionable—namely that the word "tricolor" is both preoccupied and inexact. The suggested designations of Versicolor and Tartan are also certainly less definite than that of VARIEGATED ZONAL, which at once expresses the fact that the leaves are truly variegated with a zone superadded, the variegation being due to a diseased or altered condition of the substance of the leaf, and indicating either a suppression or modification of the chlorophyll, to which the colour of a healthy green leaf is attributable, and the coloration indicated by the zone being due to another cause altogether—namely, the presence of erythrophyll in the tissues of the leaf.

The vast number of new varieties of these Variegated Zonals springing up in all directions, renders it urgent that a code of "properties" should be adopted, by means of which those sorts that approach the nearest to ideal perfection may obtain the prominence which they merit; to meet this necessity we have elsewhere proposed such a code, which we here reproduce.

The knowledge we already possess that some beautiful varieties of this group are delicate in constitution and slow in development, indicates the

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first essential property which must be insisted on in any variety which may claim a high position in popular favour—namely, a free vigorous constitution. Certain varieties again, especially amongst those with silvery margins, have a tendency to curl up their leaves from contraction of the edge; and this indicates a second essential property—namely, flatness of leaf-surface. A third essential is effectiveness in the style of colouring—a more difficult point to determine than the foregoing, since we have here to leave the real and tangible, for the ideal and imaginary. But we have endeavoured to indicate proportions that will give a satisfactory result; and the several points which it seems necessary to insist on, have been formulated thus:—

1. The plant must be of vigorous constitution, free-growing, but not long-jointed.
2. The habit must be stout, close, and branching, and the branches thickly furnished with horizontally-set well-displayed leaves.
3. The surface of the leaves must be flat—that is, neither concave nor convex from contraction of the margin.
4. The leaf-colouring must be bright, distinct, and well defined.
5. The ground colour (green), must occupy a space in the centre equal in diameter to the combined zone and marginal belt—*i.e.*, half the diameter of the leaf; it must be of uniform hue, and must not extend into or appear beyond the zone.
6. The zone must be either evenly arcuate, or regularly scolloped or vandyked, dark on the inner and brightly coloured on the outer edge.
7. The inner portion of the zone, to an extent not exceeding one-half its whole breadth, must be dark-coloured throughout (blackish or deep brownish red), breaking outwardly in a symmetrically radiated manner into the bright colour (red or pink), of the outer half, which latter must at no point break through the dark belt so as to touch the ground colour.
8. The marginal belt must be of uniform breadth, and of the same tint throughout (yellow, straw-colour, cream-colour, or white), entirely separated from the ground colour, or from contact with the darker belt of the zone.

In judging according to this code we ought first to separate these points into two groups, the real (1-3) from the ideal (4-8), and allow equal marks for each group. We should thus find a certain number indicating perfection in each separate point, and a lower number would be adjudged in any particular point when perfection was not attained. Presuming, then, the essential points to be themselves correct, it would be easy in this way to find out those varieties which come nearest to perfection.

M.

THE OUT-DOOR CULTURE OF ALSTRÖMERIAS.

Alströmerias, it would seem, are not so well known, nor so frequently cultivated in this country, as from their varied merits they deserve to be. Few, if any, plants equally ornamental require less care or attention in order to grow them successfully, when once the preparation of the beds has been accomplished. In these days, therefore, when every one is on the look-out for some novelty wherewith to astonish the eyes of flower-loving visitors, it is strange that the all-but-hardy species of this extensive and varied family of Amaryllidaceæ should receive so little notice.

The species best adapted for the purpose of out-door culture, in the manner I shall hereinafter describe, are *A. aurantiaca* (aurea), *A. hæmantha*, *A. psittacina*, *A. pulchra*, and such as these. The first-mentioned is, however, perhaps the most hardy, and this has been known to do exceedingly well in some parts of the United Kingdom without any protection whatever. So well, indeed, have they been flowered, that some twenty years ago or more, they became a noted feature in one or two nurseries. I may instance the Victoria Nursery at Dublin, and the Durdham Down Nurseries, Bristol. Of this latter place I can speak from personal observation

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of the success which at a subsequent date attended a bed originally formed and planted by the able cultivator, Sweet, whose method of planting and preparing the beds I add in his own words:—"They thrive best in an admixture of full one-third sand, rather more than a third of turfy loam, and the rest turfy peat . . . . They need planting 6 inches deep, near a south wall." The bed from which the necessary experience had been gained, to lay down this course of treatment, still continued to flourish at a much later date. This bed, moreover, was not formed upon the south border, "under a south wall," but in a border having a southern aspect, and separated from the wall by a walk about 12 feet distant. Here annually, commencing about the last week in June, the plants flowered abundantly, the flowers continuing to increase in quantity until they became a mass of bright particoloured tints, commanding the admiration of all who saw them. Individually, the spikes averaged some 2½ feet in height, and bore each from eleven to thirteen flowers. The only protection afforded to this bed through the severe winter months, was a layer of loose shakings from the manure heap.

It will be seen that the long fascicled fleshy tubers are much more favourably situated for developing themselves in the perfect freedom of an open border, than it is possible for them to be when cramped together within the limited space of a flower-pot; independent of which, the more uniform condition as to moisture of a bed of this character during their natural season of rest, is far more congenial to tubers so excessively succulent as these, than is the necessarily fluctuating condition to which they would be subjected when at rest, if kept in pots.

There are some facts relating to the culture of these plants which are not touched upon by the able author above referred to. In preparing a bed for them there should be provided at all times, save in localities where a chalk or gravelly subsoil exists, an efficient artificial drainage at a depth of about 16 inches. This is best done by taking out to the necessary depth a wide trench at one end of the bed, and at the bottom of this placing 3 or 4 inches of loose stones or brickbats, covered by a layer of waste wood trimmings, upon which the soil from the next trench should be firmly placed. To this should be added, in successive layers, abundance of sand or gritty matter, such as road-driftings; but nothing in the form of manure should be used, as any substances that have a tendency to become decomposed invariably cause canker, and subsequent decay in the tubers. As recommended above, peat earth in due proportions will be beneficial; but this, if not plentiful, might be placed more in the immediate vicinity of the tubers at the time of planting, rather than mixed up throughout the whole mass of soil. Sweet advises planting "6 inches deep," but I would recommend that they should be planted some 10 inches below the surface, especially in any less favourable latitudes.

September or early in October is, perhaps, the best season for planting the tubers, after which the soil should be pressed or trodden down quite firm. With the view of warding off excessive moisture from showers, &c., the surface of the bed will be all the better if formed with an abrupt slope to the south, and patted over firmly and evenly with a spade. When the young shoots are pushing through the ground in early spring, it is necessary to see that the crowns are not injured by insects or vermin. Be particular not to remove the old flower-stalks until they have become thoroughly ripened-off after flowering is over.

M. Van Houtte, of Ghent, originated some very beautiful hybrids of the

Chilian species, which, however, do not appear to have received that amount of attention which their great beauty deserved. Even those are said to do well planted out as described, with a slight additional protection in the severer winter months.

There are two or three readily attainable varieties which are well deserving attention for pot culture alone, and none more so than *A. Pelegrina*, a striped-flowered species from Peru. *A. Ligtu* is also meritorious as being, unlike some of them, deliciously fragrant. These are readily produced from seeds, when the latter are attainable in a state proper for germination; and they will form flowering tubers the second and third season after sowing. Treatment similar to that required for Liliums suits them well, particular attention being at all times given to ripen them thoroughly, by full exposure in the open air, when they have ceased flowering in-doors, or are past their best. To effect this properly, the pots should be plunged in an exposed southerly aspect.

Digswell. WILLIAM EARLEY.

CARTER'S CHAMPION BROCCOLI.

LAST year I strongly recommended Carter's Champion Broccoli as an excellent *late* sort. My more extended experience this season enables me to recommend it still more strongly, as not only an excellent kind, but the very best *late* one I have as yet tried. It has furnished me up to the present time (the middle of June), with heads—rather small, the plants being only small; and it will last some days longer, thus continuing the supply until Cauliflowers (which are now heading), come in. It has also proved itself very hardy this season. The plants being rather small, as just mentioned, I did not get them laid down in the autumn, when I had the principal portion of my other Broccolis laid, as I thought they would withstand an ordinary winter with little or no injury. I need not mention in how unfit a condition most kinds of vegetables were, and particularly Broccolis, after the long continuance of wet open weather, to withstand the severe frosts of January last. In many gardens, especially in low situations, and where the soil was of a heavy retentive nature, the Broccolis were all killed. Here we escaped with very little injury to anything, the subsoil being gravelly, and the situation dry. Had I laid down the plants of Carter's Champion, I am certain we should not have lost many of them; even as it was, without any preparation whatever, fully one-half escaped without material injury.

To all who have a large supply of vegetables to furnish, Carter's Champion Broccoli will prove invaluable, coming in as it does at a season of the year when there is such a scarcity of vegetables in the open ground.

In order to have it as long as possible in use, I would recommend three small plantations of it:—The first on an open piece of ground where the plants can have all the sun and air possible; these will come in first, about the time the general stock of spring Broccolis is over. The second lot may be planted either on an east or west border; these will come in before the others are past; and the third lot should be planted on a north border to come in last, and these will in general continue to furnish a supply until Cauliflowers are fit for use. To grow them fine they should have a good deep soil. Light soils should be well manured, and either trenched or dug deeply, otherwise Broccolis will only be small and poor.

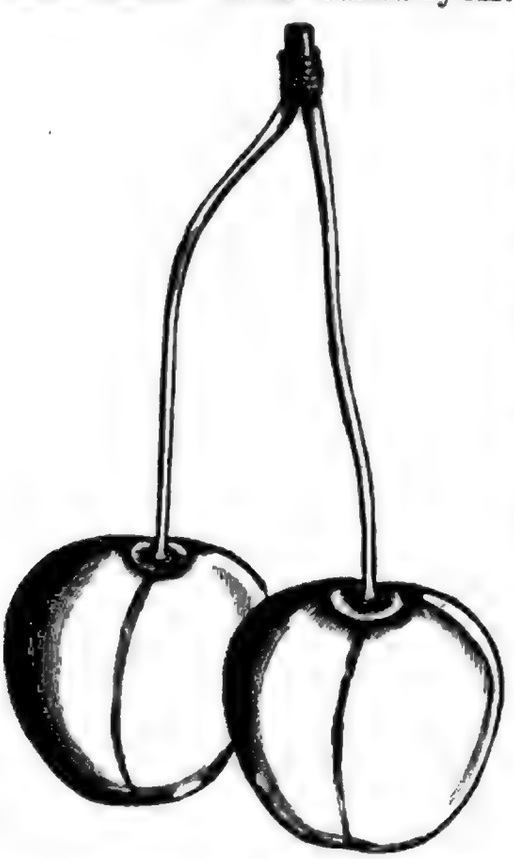
Having proved the value of this Broccoli, I have again brought it before the notice of your readers, that those who have not yet given it a trial may

be induced to do so, feeling confident that such as do will find it one of the best, if not the best, *late* Broccoli in cultivation, and a most useful auxiliary where a large supply of vegetables is required.

Stourton. M. Saul.

FROGMORE EARLY BIGARREAU CHERRY.

By the time these pages are in the hands of our readers, the Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It is comparatively a new variety, and is as yet not much known. It was raised by Mr. Thomas Ingram, of the Royal Gardens at Frogmore, and the original tree is growing against a north-east wall in the gardens there.



Unlike the class to which it properly belongs, it has a tender melting flesh. In every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling.

The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk 2 inches long with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour. Stone small.

The tree is a great bearer, clusters of a dozen and a half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June.

H.

BEDDING PELARGONIUMS.

Out of the great mass of Bedding Pelargoniums of 1866 I propose to select in the first instance from the Variegated kinds (which term is used in a very general sense), and next from the Zonal and Plain-leaved, those which have received certificates during the past year as indicating the possession of more than average claims to merit, though their value as bedding kinds is *the* standard by which their value must eventually be judged. In the Variegated section the following received first-class certificates:—*Edward George*

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Henderson (E. G. Henderson & Son), a variety similar in appearance to *Beauty of Oulton*, but superior to it, having a golden yellow leaf-ground, with rich, broad, dark zone; *Lady Cullum* (E. G. Henderson & Son), a well-known golden tricolor variety which has been frequently exhibited, and has been found a remarkably effective and durable bedder; *Jetty Lacy* (F. & A. Smith), leaves margined with bright golden yellow, and bearing a richly marked zone of bright chestnut red and deep black, compact habit; *Meteor* (Saltmarsh and Son), clear gold leaf-margin, zone of dark bronze and fiery red, and blotched with pale green, very attractive; *Senior Wrangler* (Chater), a bold and very handsomely marked golden tricolor; *Miss Turner* (Groom), another very finely marked variety; and *L'Elegante* (Cunningham), a bright green ivy-leaved variety, with broad edge of creamy white, and an abundant bloomer. A second-class certificate was awarded to *Vandyke* (F. & A. Smith), a fine golden-leaved kind, with broad zone of rich deep brown, very attractive; *Silver Gem* (Bull), also a variegated ivy-leaf variety, has bright green foliage margined with white, and slightly zoned with pink, and will make a pretty basket plant; *Bronze Green* (Garaway), is an excellent "Cloth of Gold" variety, with the addition of a dark bronze zone distinctly marked on the golden leaf-ground; *Caroline Longfield* (E. G. Henderson & Son), has a leaf-margin of pure white, with olive brown zone margined with lively carmine rose, foliage very effective; *Beauty of Surrey* (F. & A. Smith), is a beautiful variety, leaf-margin deep yellow, with an attractive zone of brownish black and carmine red, good habit; *Louisa Smith* (F. & A. Smith), has a margin of clear yellow, with striking bright red zone, good foliage and habit, and very distinct; *Wonderful* (F. & A. Smith), has a leaf-margin of rich yellow, broad zone of magenta red, and blotched with intense black. Messrs. F. & A. Smith's fine seedlings will be remembered by those who attended the Great International Horticultural Exhibition.

The other division of Bedding Pelargoniums is indeed a huge one, still there are some varieties among them that are deserving mention. *Christine Nosegay* (E. G. Henderson & Son), is a Nosegay variety with the colour of the old Christine, combined with an excellent habit; *Imperial* (Salter), is a splendid Zonal, having fine trusses of bright orange scarlet flowers; *King of the Nosegays* (Downie & Co.), has splendid trusses of glowing orange scarlet flowers, the trusses are very large, and the habit excellent; *Rosy Circle* (F. & A. Smith), has the ground colour bright salmon shaded with rose, and a centre and margin of white, and very distinctly marked foliage; and *Sambo* (Downie & Co.), is of a glowing glossy dark scarlet colour, with the flowers finely formed, and altogether first-rate. These have received first-class certificates. Second-class certificates were awarded to the following:—*Felix* (Tirebuck), pale pink, large and showy trusses, and good zonate foliage; and *Salmon King* (Batley), a very promising salmon-coloured variety, the flowers tinted and pencilled with crimson. Other varieties worth especial notice are *Miss Martin* (Ward), zonate foliage, with splendid trusses of soft rosy peach flowers; *Dr. Hogg* (Paul), purplish rose, a fine shade of colour, and very free-blooming hybrid Nosegay; *Duchess of Sutherland* (Turner), crimson cerise, a beautiful and free Nosegay; *Crimson Queen* (Paul), intense bright deep crimson, very showy; *International* (Turner), rich crimson scarlet, a fine variety for pot culture; *Ossian* (Paul) glowing blood crimson, foliage slightly zonate, a very free and showy kind; *Pink Globe* (G. Smith), rosy pink, trusses large and bold, very promising; *Reliance* (G. Smith), bright orange scarlet, with white centre, bold and striking; *Village Maid* (Paul), bright deep pink, with clear white blotch on the upper petals, good habit;

Waltham Gem (Paul), colour bright red, with distinct white centre, novel and striking, dwarf habit; and *Warrior* (G. Smith), glowing scarlet of a rich hue, trusses large and showy, and of fine quality.

The varieties mentioned in this paper may be taken as representing the best of last year's batch, so far as their relative qualities can at present be accurately reported on. The reputations of some, doubtless, will become wrecked when subjected to a further trial—it is always so with new flowers; others will come out from the trial enhanced in value, and, perhaps, possessing qualities hitherto hidden from the florist's sight.

R. D.

TRIAL OF EARLY PEAS IN POTS IN 1867.

Having the advantage of a great length of glass wall-covering, I have this spring made a trial of all the earliest Peas in cultivation, taking means to have them true from the raisers. They were all sown on the same day, early in February, in the same sized pots, soil, and situation. The varieties were Carter's First Crop, Sutton's Ringleader, Dickson's First and Best, Taber's Perfection, Dillistone's Prolific, and Sangster's No. 1. The First Crop and Ringleader showed flower at the same time; Taber's Perfection and Dickson's First and Best were two days later; Dillistone's Prolific was evidently the spurious variety, for it was a week later than the others in flowering; and Sangster's No. 1 the last. The first dish was gathered off Carter's First Crop and Ringleader (for they are identical in growth and earliness), on the 15th of May. Dickson's First and Best and Taber's Perfection were only two days later in furnishing their first picking. Sangster's No. 1 and Dillistone's Prolific were eight days later. The results were as follows:—First Crop and Dickson's First and Best averaged only three and four Peas in a pod, and came in nearly all at once. By far the best podder and forcer was Taber's Perfection, for it averaged four and five Peas in a pod of good size, and was well flavoured. The sort I had for Dillistone's Prolific was similar to Sangster's No. 1, for they were both ready at nearly the same time, and resembled each other in the size of the pods, and in growth.

I had a long low pit filled with McLean's Little Gem, which produced by far the finest and earliest Peas I have ever grown in May. The first batch of pots was sown in November, and came in in the end of April; and two other sowings made in December produced some good dishes in the beginning of May. In fact the pods and Peas were as large as those produced in summer, and of quite of the Marrow flavour. For the future I intend discarding all the tall early Peas for forcing, and only using Little Gem and Tom Thumb, with Advancer for the tallest variety.

Welbeck. William Tillery.

MY FATHER'S GARDEN.*

We have read through this book with sufficient care and thought to feel justified in recommending it to others. It is not a book on gardening, in the strict sense of the term, although there is in it a good deal of informa-

* My Father's Garden. *By Thomas Miller. With Forty Illustrations. London: George Routledge & Sons, The Broadway, Ludgate.*

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tion on gardening, and, in general, this is accurately conveyed, the aim of the author being apparently to inculcate habits of perseverance and honest industry, which he does with all the grace and energy of his simple, clear, and fascinating style.

The hero, George Able, the son of a market gardener, is sixteen years of age at the opening of the tale. His father's garden, consisting of one acre only, is situate on the Surrey side of the Thames, and is adapted to the growth of early vegetables, which had afforded the Ables a decent livelihood for at least two generations. But the rapid rise of buildings closed them in on every side, and, notwithstanding their utmost efforts, their vegetables refused to grow as of old, while the facilities of transit by railways from distant and more favoured localities reduced the prices of their produce, so that they found their income gradually diminishing. To make matters worse, a new railway takes from them three-fourths of their acre of ground, which they hold only as yearly tenants, and for which, consequently, they can claim but small compensation. At length poverty fairly stares the worthy family in the face, when an idea strikes George's mother that he might build a small greenhouse with some old bricks and posts that had long lain unused on the ground. Old Able is almost prostrated by his misfortunes; but George sets to work, manages to buy the glass, receives a liberal supply of cuttings from old friends of his father, and grows a house full of "bedding plants." Our first extract will serve to show that, unlike many youths of this age, George "calculated," and this habit of mind, no doubt, contributed largely to his ultimate success:—

"I calculated that, if everything went on prosperously, the most I could expect, in the shape of return for the outlay and labour, would be from a few 'bedding-out plants' rather late in the spring, for I had no doubt, well-known and respected as my father was, he would obtain plenty of cuttings for me for nothing, when he went round among his friends, for no class of men are kinder to one another than gardeners, or readier to help each other to a job of work."

Sister Jane, who was an invalid, and compelled to lie down almost constantly through suffering from a spinal complaint, not only sympathised with and counselled our hero, but also lent him material aid in preparing cuttings, which her nimble fingers enabled her to do much more quickly than he could. As George's small greenhouse did not wholly occupy his time, he wisely thought he might try to earn a few shillings elsewhere, which, while it did not prevent attention to his home duties and the development of his plans, gave him what the industrious mind delights in—constant and useful employment. To this end, he undertakes to teach gardening to boys in a reformatory.

"The boys tried me very sorely for the first few days; but when they found I never lost my temper, nor reported them, as I threatened to do, if they did not be more attentive and behave better—yet never fulfilled my threat, they said, 'I was a good sort, and no gammon,' and I was soon able to do anything I pleased with them, for I began in the first instance by selecting them myself, for the head gardener had long known my father. * * * The first one I selected was an impudent-looking little rascal, who was 'taking a sight' at me with the end of his thumb to his nose, and his four little fingers expanded; but there was such an expression of good-humour in his roguish face, that I picked him out at once, while he blushed as if ashamed at what he had done. * * * * The second was a sturdy determined-looking little fellow, who was taken red-handed with a lump of bacon he had snatched from off the open window shelf, where it was exposed, as if to tempt him, and who offered no other defence than that 'he was hungry, and thought it would be jolly to have a frizzle, as he had got some "toke."' His father was transported for felony. I picked him out because he looked me full in the eye, and a smile lighted up his firm, square face as I placed him beside his companion. The third I picked out was a gipsy boy, and had lived in tents. He was a swarthy little scoundrel, and the expression of his dark eyes was like

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that of a rat's. So I went on completing my number, partly from the impression made upon me by their looks, and partly from what the head gardener told me of their precedents and behaviour while they had been in the reformatory. I had arranged beforehand where they were to commence, and had marked out the ground, for there were full two acres in all under spade cultivation. Spades were given to them suitable to their age and strength, and they were delighted when they got out into the open air."

As George's bedding plants come to maturity he visits Mr. Rose, a rich nurseryman in the neighbourhood, with whom the family had long dealt for seeds, and does a satisfactory stroke of business with him. But his customers were not all of this type. Having as yet no connection, he was glad to sell some of his plants to hawkers and costermongers. Later on, in a deal for some "Christines," Mr. Rose fairly "walks over" George, although the latter slily tells him at the onset that he was going to take them to his rival, Mr. Smith. Mr. Rose, however, although a "very hard nail," was not the man to benefit by others without seeking to render some return. George, by steady perseverance, honesty, and exercise of judgment had improved in circumstances and gained very general respect, although still short of capital. He wants another greenhouse, but cannot bring his mind to build it until he sees clearly how it is to be paid for. In his difficulty he consults Mr. Rose, with whom and whose clever daughter Polly he now stands on pretty easy terms, and Mr. Rose, by advancing money for bedding plants which he would require, enables him to carry out his views. After this, the circumstances of our hero continue to improve, and, like most true-hearted, courageous, and intelligent men, he rises with his circumstances. He is a great favourite with the opposite sex, especially with Mr. Rose's daughter Polly, and Lily the daughter of an officer in the Volunteers, which corps he has joined with an eye to business. At length he becomes manager for Mr. Rose, and, as might be expected, marries Polly, and finally succeeds to the business. Sister Jane, who recovers her health, marries a clergyman, while old Able and his wife are amply provided for, principally through the restoration of property which, unknown to them, had been purchased by the grandfather. Old Mrs. Able pleads successfully for a dinner to the street-hawkers, on George's wedding-day.

With the following extract we must conclude a much longer notice than we had intended at the onset. George is now a rich and influential man:—

"When I look back and consider the humble position I occupied when a boy—and I think that but for the encouragement my dear mother gave me, and the path she directed me into, and which I followed obediently, I might have all my life remained a poor, hard-working market-gardener—when I think of this, I rebel against the rule which advises us to rest satisfied with the lowliest estate we may be placed in, for I will not believe that it was ever intended that one endowed with human intelligence, was predestined to remain stationary.

"There are and ever will be, I suppose, 'hewers of wood and drawers of water,' and I pity those who remain contented with such servile occupations. Those who exclaim against ambition raise a cry against progress, for it is that which causes a spirited lad to strive to excel both in the playground and in the school; and though on the latter point I speak not from experience, as my education was of the very humblest, yet I have known many who won the honour of captaincy in our schools, that went out and distinguished themselves in the world, as they were sure to do.

"Had I been kept down and remained only a common market-gardener, I should have striven hard as I grew older to have carried off a prize at some exhibition of vegetables for the finest Cabbage or Lettuce, if I could have grown nothing better; for I believe that in the humblest calling we may for a time follow, any one with a right ambition will reach the top of it."

The tale is a sweet picture of family concord, and points the road of honest and persevering industry as the surest means of reaching an honourable end. We repeat, lest we should mislead our readers, that this is not

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a book on practical gardening, but it is one, nevertheless, that all nurserymen and gardeners—young nurserymen and gardeners especially—should read. Joyous in spirit, clear, vigorous, and simple in style, reminding us in this respect of Swift without any of his coarseness, it bears a forcible contrast to much of our garden literature. No fine words, no bungling sentences, no flippancies or conceits—the tale runs on like a smooth river, flowing through well-kept banks studded with bright and beautiful trees and flowers, redolent of odour, joyous with song. Our young writers on gardening, whose style is not yet fixed, could not do better than take this as their model.

The book is plentifully adorned with pleasing illustrations, and is a marvel of cheapness even in this age of cheap literature.

W. P.

POINSETTIA PULCHERRIMA.

Among the various matters that engage a gardener's attention through the different seasons of the year, that of providing a large and constant supply of plants for conservatory and in-door decoration during the winter months, is one that requires a good deal of forethought and labour. There are a great number of plants now-a-days well adapted for this purpose, and among them Poinsettia pulcherrima has a strong claim on our attention. Its bright scarlet bracts are very effective, and they remain perfect for a very considerable time, which is a matter of some consequence.

The floral envelopes of this species are generally largest and finest on young plants with only one stem, and as these are generally most useful for in-doors, a number of young plants should be grown every season. These are easily raised from eyes of the previous season's wood, like Vines, put in early in April and plunged in a nice bottom heat. As soon as they are rooted they should be potted off singly into small pots, using a compost of peat and loam, mixed with plenty of silver sand. When potted they should be returned to the frame or pit, and again plunged in a nice bottom heat, and kept rather close for a few days until they begin to grow, when air should, at every favourable opportunity, be abundantly admitted. They should be freely sprinkled overhead with water when they require it; but care must be taken not to give them too much water at the root, particularly whilst they are plunged. Towards the end of June, or by the early part of July, they will be nice little plants, and will, if they have done well, require a shift into a larger-sized pot about that time. After they are shifted into larger pots they will do very well in any of the vineries, if not too shaded, until September; but should be kept near the glass that they may not be drawn. In September they should be put into the stove, and should be carefully watered and freely syringed overhead. In due time they will unfold their brilliant scarlet bracts. They should have every attention paid them whilst in flower. When they begin to go out of flower, water must be gradually withheld from them, and the plants should be rested in a dry part of the stove.

In the spring the branches of the previous year should be cut down to within three or four eyes of the old wood. Shake off all the soil from the roots, and repot them into as small pots as possible; then plunge them in a nice bottom heat. When they have grown a little and made some fresh roots shift them into larger pots, and return them to a situation where they may enjoy a supply of bottom heat. They will then grow rapidly,

and in the course of a few weeks will again require a large pot. After that they will do in a vinery, if not too much shaded, or they may be put into the stove. These large plants will bear several heads of flowers, and are very ornamental and showy; but the bracts will not be so large as those on young plants that only bear a solitary flower-head.

Stourton. M. Saul.

SANCHEZIA NOBILIS VARIEGATA.

Sanchezia nobilis is one of the finest amongst the brilliant-flowered Acanthads that are so abundant in our plant-stoves, being remarkable for its numerous fascicles of erect blossoms, collected into a dense paniculate inflorescence, and consisting of long, bright yellow, tubular flowers, emerging

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from broad crimson bracts, as brilliant in every way as the gayest of Aphelandras, but much less formal in aspect.

Of this most beautiful and interesting plant, the Messrs. Veitch & Sons, of Chelsea, who were its introducers, are fortunate enough to have also secured a striped-leaved variety, which is the subject of these remarks, and which is represented in the accompanying figure, which has been kindly placed by them at our disposal. The bold character of the leaves of this plant, which is here well represented, and the conspicuous markings or bands of yellow by which they are decorated—recalling to mind those of the handsome Aphelandra Leopoldii, though much more beautiful—render it an ornamental object in every stage of growth, and justify us in asserting that it is one of the most valuable plants of modern introduction. The leaves are, when fully grown, from 12 to 15 inches in length. This Sanchezia is a native of Bolivia, and has been introduced by the Messrs. Veitch through their most fortunate collector, Mr. Pearce. Its free growth and fine habit, together with its bold leafage and elegant markings, indicate a valuable exhibition plant, and altogether we do not hesitate to pronounce it to be the finest novelty of the present season.

M.

FICUS STIPULATA.

It is scarcely possible to over-estimate the merits of this plant for a certain purpose—viz., that of covering the back wall of a stove or Orchid-house. It will succeed in positions where scarcely any other creeper would exist. A damp wall suits it admirably; but it must have plenty of room, especially root room. A plant here, permanently planted out, forms a dense carpet of green foliage all through the season, clinging Ivy-like to the wall, but if possible with more tenacity. The only attention bestowed upon the plant is frequent syringing during the summer season, and an occasional pinching-in of the shoots when they advance too far from the wall. It strikes freely in a little heat, from half-ripened wood. As regards its adaptability for pots I cannot with certainly speak, having had no experience with it as a pot plant. It is often called Ficus repens.

Wrotham Park. JOHN EDLINGTON.

TAXODIUM SEMPERVIRENS.

This is, indeed, one of the giants of the forest—a noble and distinct-habited hardy evergreen tree. It is a tree fit to look upon every day in the year, for there is such an admirable contrast between the colour of its bark and its branches; the former being of a rich ferruginous brown, and the latter of a dark shining green. It is, moreover, as hardy as an Oak, and most surely should be grown in every place of any extent. In California this Taxodium is said to grow to the height of 300 feet, and to reach from 20 to 30 feet in circumference—surely a noble tree, like its neighbour Wellingtonia gigantea, which it resembles also in not putting forth any very great display in the way of cones or catkins.

There is a tree here some 40 feet or more in height, and with a circumference of 8 feet 10 inches in the bole; it is branched to the very base, and is of a beautiful pyramidal shape. This tree has borne cones for several years, but though it has produced male and female blossoms most abun-

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dantly, yet, nevertheless, very few cones have grown to their natural size, which is less than that of the cones of Cryptomeria japonica, and about the same shape and colour. The seeds, which are numerous and have small wings, ripen in October. Both female cones and male catkins are, when they first show, of a globular shape, and small size. They appear on the ends of the last season's young shoots during the winter months, and are in bloom in January and February. In consequence of this early flowering habit, the cones are almost always cut off and destroyed on the south-east side of the trees—that is to say, from the east to the south aspect, on account of the sun reaching them on this side before the frost is gone; but on the opposite side of the tree, namely, from the west to the north aspect, perfect cones and seeds are often to be found.

Bicton. JAMES BARNES.

NEW PLANTS.

WE have elsewhere (p. 154), alluded to *Sanchezia nobilis variegata* as being probably the best novelty let out during the present spring, and may, therefore, here pass on to notice other acquisitions of merit, among which must not be forgotten the *Double Crimson Thorn*, recently figured by us. Another prominent place amongst the novelties of the season must be accorded to *Amaryllis* (*Hippeastrum*) *pardina* (Bot. Mag., t. 5645), one of Messrs. Veitch and Sons' introductions from Peru, of which we shall publish a coloured figure in due course. This Amaryllis is one of the broad-petaled species, with a very shallow tube, and the segments spreading out to form a wide open flower, showing off its very novel colouring to advantage. The colour is a pale straw yellow, spotted all over with small irregular more or less confluent blotches of crimson, the markings being exactly analogous to those which occur on many varieties of Calceolaria or Tydæa. It is a very beautiful plant, and is quite an acquisition amongst stove bulbs.

Among stove terrestrial Orchids a very pretty species has been published under the name of *Bletia Sherrattiana* (Bot. Mag., t. 5646). It is a native of New Grenada, and has vertically flattened pseudobulbs, plicate leaves, and racemes of large bright purplish rose flowers, a dozen or more together, of delicate texture, with broad petals, and a beautifully marked lip. The habit is that of B. verecunda. The lip is large and flattish, three-lobed, with large rounded or reniform side lobes, and a transversely reniform terminal lobe, which is deeper-coloured than the rest; the centre is pale-coloured, and marked with three parallel golden lamellæ or crests, from whence purple veins radiate into the side lobes. It is an important addition to the ranks of terrestrial Orchids. Another acquisition, just flowered in the collections of Mr. Dawson, of Meadow Bank, and Mr. Marshall, of Enfield, is the New Grenada *Odontoglossum roseum*, a small-flowered plant, but which, having the blossoms wholly of a pretty rose colour, must, when established, prove a very ornamental object.

M. Regel figures in the Gartenflora a desirable looking hardy perennial, named *Primula luteola* (t. 541), which may be compared to a yellow-flowered P. denticulata, the leaves much resembling those of that elegant species, and the inflorescence being also similar in character, though the flowers are a trifle larger. It was discovered in the Caucasus by Ruprecht, growing abundantly in moist situations at a considerable elevation, and was raised by him and given to Mr. Buck, of St. Petersburgh, by whom the specimen

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was flowered. The leaves are 6 inches to a foot long, with the margins recurved, and the flowers are pale yellow, with a dash of golden yellow about the throat, numerous, and forming open globose heads on rather tall scapes. It blooms in August, and will form a very nice addition to the many hardy Primulas which already adorn our gardens.

M.

HOW TO GROW PHLOXES.

To have Phloxes in the finest possible condition, they must not be planted out in the borders and left to their fate; but they must have some cultural attention. The following course of treatment may be recommended:—

In February, pot a few plants in light, rich, loamy soil, and place them in a greenhouse or frame. They will soon make shoots long enough for cuttings; and these can be quickly rooted in a moderate hotbed, with Verbenas or other bedding plants; and after being properly potted and hardened off, they will be fit to plant out in May.

In selecting a situation for planting out, a spot where there is a little shelter from strong winds is to be preferred, but otherwise it should be fully exposed to all the air and sunshine. The soil should be enriched with some good rotten manure, and when the plants get strong they should be liberally watered with liquid manure. They should be planted about 15 inches apart for the first season's blooming, which will commence about August, and continue till the end of September; but in the ensuing spring they should be replanted, placing them 18 or 20 inches apart, for the second year's blooming, which will begin in July, and, if the plants are prevented from seeding, will go on till the end of September. Care should be taken to have a stake to each plant, and as the shoots advance in growth they should be securely tied to it. If this is neglected, they are very likely to be snapped off close to the ground. A slight wind is sufficient to do this, and then the plant is spoiled for the season.

If a Phlox is well managed, it will be in its prime in the second year of its flowering. Early in the spring, when the shoots are 3 or 4 inches long, it is a good plan to thin them. A good two-year-old plant will generally start more shoots than are required, but five or six only should be left to go up for flowering. The spare shoots make excellent cuttings, but they can seldom be rooted early enough to flower the same year like those obtained from plants put into a greenhouse in February. However, the plants obtained from these cuttings make fine flowering plants for the next year.

But little can be done in arranging Phloxes according to their height; indeed, in this respect (with two or three exceptions), there is very little difference between them. The first year they generally flower when about 15 or 18 inches high, but the same plants in the second year will grow 2 or 3 feet high.

A continual succession of young plants should be kept up by cuttings. Dividing the old roots is a clumsy method of increasing the stock, and plants obtained in this way seldom produce fine healthy foliage and good flowers. A Phlox should be thrown away when it gets over two years old, and a young plant put in its place. Sometimes Phloxes may be placed here and there in mixed borders or shrubberies, where they help to make a garden gay, and furnish a supply of cut flowers; but the spare plants

only ought to be used for this purpose, as they never, under this treatment, produce such fine flowers as when they have a place to themselves.

Phloxes may be easily grown in pots by attending to the instructions given for growing them in the open ground, only they require more care in watering.

The varieties of Phlox decussata are the best and hardiest, and have been very much improved lately. There used to be some pretty varieties of Phlox pyramidalis, but they are delicate, and have given place to the former. A selection of the best modern varieties of different colours will be found in the following :—

Madame Corbay.—White, with violet centre.

Madame Duchemin.—White, with crimson centre.

Comtesse de Turenne.—Deep purple centre, edged with pure white.

Madame Lemont.—Mauve, flamed or suffused with purple.

Madame Rosay.—White, with rosy centre.

Monsieur de Launay.—Slate tinged with salmon, purple centre.

Monsieur Donnaud.—Violet, suffused with salmon.

L'Abbé Roussel.—Claret.

Lucien Tisserand.—Bluish violet.

Madame Devilliers.—Claret, with purple centre.

Madame Emarant.—Rose, tinged with salmon.

Madame Herbeaumont.—Brilliant rosy salmon, with purple centre.

Rêve d'Or.—Bright cerise salmon, purple centre.

Monsieur Mittivier.—Brilliant crimson, suffused with salmon.

Monsieur Paulmier.—Salmony crimson.

Liervalii.—Bright purple, each petal edged with white; this gives the flower the appearance of having a white cross on a purple ground.

Etoile de Neuilly.—White, tinged with violet; beautiful purple eye.

Mademoiselle Christine Nilsson.—White, with large carmine centre.

Premices du Bonheur.—Rosy white, with bright cerise centre.

Roi des Roses.—Rich rosy salmon.

Vierge Marie.—Pure white, with large, rich, purple centre.

Figaro.—Fiery salmon, very bright.

Géant des Batailles.—Ash grey, tinged with orange or salmon; fine purple centre.

L'Avenir.—Brilliant crimson, tinged with salmon.

Madame Lecomte.—Bright salmony crimson

Lea Bridge Road. JOHN FRASER.

NOVELTIES, &c., AT FLOWER SHOWS.

THE Floral Committee which met on the 21st of May had before it some very fine Show *Pelargoniums*, among which first-class certificates were awarded to *Example*, from Mr. G. W. Hoyle, of Reading, a flower of very fine quality, and to *Victor* (Hoyle), another excellent flower; while *Heirloom* (Hoyle), received a second-class certificate. These will be noticed more in detail hereafter. *Azalea Lizzie*, from Mr. F. R. Kinghorn, of Richmond, is a fine addition to the exhibition varieties; the flowers are of very fine form and substance, the colour white, flaked with rosy carmine. This got a first-class certificate, and a figure will be published in due course. *Viola pedata*, long since introduced from North America, was shown by Messrs. Osborn & Son, of Fulham. It grows very dwarf, and forms a pretty and showy rock plant, though it does not continue blooming for a very long time. The flowers are of a deep lilac hue, becoming paler with age. Two more very fine rosy pink *Nosegay Pelargoniums* were shown by Messrs. Downie, Laird, & Laing—viz., *Emmeline* and *Countess of Rosslyn*. They are of different shades of colour, the latter being suffused with violet, and they freely produce large trusses of fine flowers. They were the result of crossing Lord Palmerston and Rose Rendatler. First-class certificates were awarded to them. Another new Nosegay, from the same exhibitors, named *Marksman*, came from King of Nosegays and Rose Rendatler; the colour in this

case was vivid cherry crimson, but lacking the finer qualities of the two former. Mr. W. Paul got a first-class certificate for a very beautiful dwarf-growing rosy lilac *Nosegay*, well named *Lilacinum*. This has a charming shade of colour and a good habit. His Nosegay *Crimson Queen* has a hue of colour that is very striking, and unites to a good habit very free-blooming properties. Among the ordinary *Zonal Pelargoniums*, one named *Lord Derby*, shown by Mr. John Mann, of Brentwood, must be regarded as among the very finest yet produced. The colour was intense bright scarlet, the flowers large, stout, and very smooth. It was awarded a first-class certificate. First-class certificates were awarded to Messrs. E. G. Henderson & Son and to Mr. W. Paul for *Ulmus campestris aurea*, a handsome Golden Elm, which promises to be a valuable acquisition to the class of hardy and pictorial trees. Messrs. Osborn & Son had a first-class certificate for *Osmunda regalis acutiloba*, a new variety of Royal Fern. We have already (p. 128), adverted to the Variegated Zonal Pelargoniums brought together on this occasion.

At the Crystal Palace Show, on the 25th of May, the novelties were limited in number. Even Show Pelargoniums, generally well represented at the Crystal Palace summer show, were very sparely produced. *Queen of Roses* and *L'Empereur*, both very fine, large-flowering varieties, shown by Mr. Wiggins, gardener to W. Beck, Esq., of Isleworth, received first-class certificates. The former is of a vivid rosy crimson colour; the latter has warm pink lower petals, blotched with rosy dark. *Hermit* (Beck), a large pale blush flower, was only just expanding, and promised to be a very fine variety. Some *Lobelias* of the Erinus section were shown by Mr. W. Bull, of Chelsea. One, *Rosy Gem*, with rosy lilac flowers and white centre, received a first-class certificate. It is of much taller growth, and has larger flowers than Carter's Beauty of Ravensbourne, a very dwarf-growing variety in the same way, but the habit looked spare and weak. Both Messrs. Veitch & Sons and Mr. W. Bull were awarded first-class certificates for the handsome *Sanchezia nobilis variegata*, and a fine plant shown by Mr. B. S. Williams got him the same award. *Tillandsia argentea*, a very curious-looking plant, with the surface of the leaves like frosted silver, shown by Mr. Bull, was awarded a first-class certificate. Roses in pots and Pelargoniums were very fine on this occasion. Mr. W. Paul's twelve Roses contained some splendidly bloomed plants, and Mr. Turner's twelve were famous for their remarkable foliage, though scarcely advanced enough in bloom.

At the first great Show of the Royal Botanic Society, on the 29th of May, Show *Pelargoniums* were largely produced. First-class certificates were given to *Example* (Hoyle), *Victor* (Hoyle), *Man of Mark* (Hoyle), *Hermit* (Beck), *Lady of Quality Improved* (Beck), *Emperor* (Foster), *Grandee* (Foster), and *Rob Roy* (Foster), a very fine lot, that will shortly receive a more extended notice. *Electra* (Beck), *Calypso* (Beck), *Aspasia* (Beck), *Magician* (Foster), *King of Trumps* (Foster), *Troubadour* (Foster), and *The Peer* (Foster), were also very promising flowers. First-class certificates were awarded to Mr. C. Turner for the following *Fancy* kinds:—*Pink Perfection*, previously described; and *East Lynne*, rosy pink, of a very lively hue, changing to rosy crimson, and edged with pale rose, the upper petals dark rosy crimson, stout, smooth, and of good size. A remarkably showy variety of the Large-flowered class, called *Magnet*, was shown by Messrs. Dobson & Son, of Isleworth, which will prove a valuable kind for forcing or market purposes, or for massing for decorative purposes. The colour is of a bright purplish crimson, and the flower was awarded a first-class cer-

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tificate as a market variety. A vast quantity of New Plants received first-class certificates. W. Marshall, Esq., of Enfield, received this award for *Miltonia spectabilis rosea*, a very fine variety. The same award was made to Messrs. Veitch & Sons for *Retinospora filifera*, a very graceful Conifer, the property, it was understood, of Mr. Standish, of Ascot, who holds the entire stock; also to J. Gray, Esq., of Ashridge Park, Berkhampstead, for a well-marked *Deutzia gracilis variegata*; to Mr. W. Bull for *Pelargonium Silver Gem*, a very useful-looking silver-edged Ivy-leaved variety; and to Messrs. E. G. Henderson & Son for the dwarf golden-tinted *Pyrethrum Parthenium*, called *Golden Feather*, which appears to be a good bedding plant, as far as it has been seen used for this purpose.

The great Show of the Royal Horticultural Society was held on the 4th of June, and "novelties" formed a most interesting feature. Of New Plants nothing could be more curious than that strange-looking Arad, shown by Mr. Bull, named *Amorphophallus nobilis*, a huge fleshy fungus-like plant, of a pale claret colour, which had been shown at the Regent's Park in the form of a vast puff, but had now developed the spathe, something in the form of an Elizabethan neck-frill, showing somewhat of the curious spadix in the interior of the mass. It was awarded a first-class certificate. Messrs. Veitch & Sons produced for the first time the charming Indian *Dendrobium Bensoniæ*, with white flowers, having a rich orange centre to the lip, and a pair of blood-coloured spots near its base. Messrs. Veitch also had *Alocasia intermedia*, a very fine hybrid between A. Veitchii and A. longiloba, and combining the good properties of both. A splendid and unique form of *Cypripedium Stonei*, together with an example of the original variety, came from Mr. Stone, gardener to J. Day, Esq., of Tottenham. The petals of the former were much broader and shorter than those of the older variety, and it was awarded a first-class certificate. The magnificent *Cattleya Dowiana* was also shown by the same exhibitor; it has buff sepals and petals, and a large lip of a rich violet purple hue veined with gold. A very pretty dwarf-growing perennial, suitable for rockwork, named *Silene pennsylvanica*, came from Messrs. Backhouse & Son, of York; the flowers are very freely produced, and of a bright pink colour, and it was adjudged worthy a first-class certificate as a hardy plant. Show *Pelargoniums* were again in force, and first-class certificates were awarded to *Joan of Arc* (Foster), deep rose, suffused with purple, a fine and bold flower, and *Hermit* (Beck), a very fine light flower. A second-class certificate was awarded to *Filomena* (Beck), of a beautiful shade of colour—bright rosy violet, with a dark blotch on each segment; and a similar award was made to Mr. Turner for *Fancy Pelargonium Madame Vilda*, a dark rosy crimson self flower with pure white throat, very free-blooming. At an early meeting of the Floral Committee in the present year, a *Zonal Pelargonium*, named *Mimas*, was shown by Mr. J. Mann, of Brentwood. It was again produced on this occasion in very fine condition, and was awarded a first-class certificate. The colour may be termed very bright orange scarlet of a pure and beautiful shade, the flowers large, bold, and smooth. A similar award was made to Messrs. Downie, Laird, & Laing for *Seraph*, another Zonal variety; colour orange salmon with a light centre, of fine quality and substance. The beauty of *Aubrietia Campbellii*, when flowered in tufts, was demonstrated on this occasion by its being shown in a pan, a mass of it being in full bloom. It appears to be the deepest coloured of the Aubrietias, and succeeds as well out of doors as under glass. A very showy-looking rose-coloured forcing *Pink*, named *Lord Lyon*, was shown by Mr. J. Clarke, of Bury St. Edmunds,

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and awarded a second-class certificate. The flowers are of a clear lilac rose colour, and in its habit it appears to partake as much of the character of the Picotee as of the Pink. It was raised from Clarke's Garibaldi.

R. D.

OUR MONTHLY CHRONICLE.

Lindley Library.—It has at length been determined that the surplus funds of the International Horticultural Exhibition and Botanical Congress of 1866, shall be devoted to the formation of a Garden Library, to be called The Lindley Library. It will consist of a selection from the library of the late Dr. Lindley, with such additions as the funds may permit; it will be deposited at South Kensington, as an adjunct of the Royal Horticultural Society; it will be invested in the names of seven Trustees, so as to secure it against dispersion; and it will be available to gardeners and others, under regulations for its preservation to be hereafter settled by the Trustees, among whom the three International Secretaries, Messrs. Moore, Masters, and Hogg, will represent the International Committee. The available balance is about £1800, of which £600 is devoted to the purchase of Dr. Lindley's books as the basis of the Library.

New Roses.—What is the chronological status of new Roses—that is to say, what is to be understood by the expression—A new Rose "sent out" in 1867? Our new Roses mostly come from France, and are distributed in the autumn of the year. It seems, therefore, clear to us, that as *the trade generally*, and *amateurs* also, can purchase these Roses at the time just indicated, they are from that date absolutely "sent out," so that a Rose sold in this way in the autumn of 1867 is a "new Rose of 1867." Custom seems to have generally ruled to the contrary, but a precedent on the other side was set by the rule adopted at the Great International Exhibition; and as the question is one which periodically recurs, and is productive of much inconvenience, we think it should be settled once for all in the sense we have indicated, so as to avoid disputations for the future. Practically it can make no difference what rule is adopted, provided some decision is arrived at; but as this is simply a question of fact, it is clearly best to settle it in accordance with the fact.

Blotched Breadalbane Ash.—The inquiries of Mr. Anderson-Henry have elicited that this plant is the result of a cross by inoculation like the variegated Jasmine that formerly grew in the Chelsea Botanic Garden. Some half century ago, Mr. Turnbull and Mr. Brown of the Perth Nurseries, during a botanical excursion to the Highlands, found in a glen near Kenmore, a branch of an Ash tree with entirely golden foliage. This was taken and budded on the common Ash. None of the buds grew, but the operation had communicated the blotch to the stocks; and the plant has ever since been annually grafted, and catalogued under the above name. Weeping Ash grafted on the same stock acquired the blotch also. It is presumed that the bark introduced with the bud became attached, though the latter did not push, and thus the tree became inoculated with the yellow colour which broke out in blotches on the leaves. These facts are very suggestive to the growers of Variegated Zonal Pelargoniums.

Aubrietia græca.—This pretty dwarf perennial is strongly recommended for spring gardening. Its flowers are large, and in many of the plants of the finest violet-blue. It is very early, commencing to bloom in February, and lasting in perfection for a long time. When raised from seed there is some variety of shade, which rather enhances its value than otherwise.

Colouring Growing Wood.—The daily papers some time since called attention to an invention of Mr. Hyett's, by which he makes trees imbibe colours while growing. Metallic salts are introduced into the substance of the growing tree, and apparently carried up by the sap, and forced into the fibres and cells of the stem. We can thus, it was remarked, make our forests play the part of their own stainers and grainers.

Vanilla.—Probably the best plant of Vanilla in cultivation in this country is to be found at the present time in the Sheffield Botanic Garden. In the Victoria-house there it is growing in the greatest luxuriance, and fruiting freely. It is planted in a border at the western end of the house, occupying fully half the width of the structure, and is trained parallel with, and at a short distance from, the upright sashes, before which it forms a thick screen from the floor to the roof, and it would soon cover a much larger space if accommodation were afforded it. Mr. Ewing's object in planting it in this situation was to secure a plentiful circulation of air about it.

Chamæcyparis obtusa.—According to M. Briot, C. obtusa pygmæa when grafted on C. Boursieri yields plants which are free-growing and erect in habit; while if it be grafted on a Biota or a Thuja, or if it be propagated by cuttings, the plants instead of becoming erect spread horizontally on the ground.

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Seaside Planting.—It has been recommended, in order to establish trees on the seacoast, to plant thickly of Sycamores and Poplars for shelter, these seeming to do better than any other trees. The beautiful varieties of Hollies, which do remarkably well, and always give satisfaction are recommended. The following are also found to succeed, viz:—Hollies of sorts, Yews, Box, Laurustinus; Laurels, both Portugal and Common; Arbutus, Aucuba japonica, Cotoneaster frigida and macrophylla, Evergreen Oaks, Privet, Gorse, Pinus austriaca, and Laburnums. Almost all shrubs and trees of the order Leguminosæ seem to do well. For instance, Lupinus californicus, grows about 4 feet high and 6 feet through, flowers very abundantly, and is quite hardy. The flowers are as large at those of the Laburnum, and stand erect, but the colour is not so deep a yellow. October and November is the best time to plant.

Robinia Pseud-Acacia fastigiata.—M. Carrière states in *Revue Horticole*, that while if a cutting or a graft of this variety be taken from the upper portion of the tree, the fastigiate habit will be reproduced, and the branches will be furrowed and covered with short prickles; yet if the plant be multiplied by detaching portions of the root, then instead of a pyramidal tree with erect branches, a spreading bushy shrub is produced, with more or less horizontal cylindrical branches, destitute of prickles.

Arranging Cut Flowers.—A writer in the *Gardeners' Chronicle* observes that of all the mistakes that are made in arranging flowers, the commonest is that of putting too many into a vase; and next to that is the putting too great a variety of colours into one bouquet. Every flower in a group should be clearly distinguishable and determinable, without pulling the nosegay to pieces. The calyx of a Clove Pink should never be hidden by being plunged into the head of white Phlox, however well the two colours may look together. Sweet Peas never look so well in the hand as they do on the plant, because they cannot be carried without crowding them; but put them lightly into a vase with an equal number of pieces of Mignonette, or rather, ornament a vase half full of Mignonette with a few blooms of Sweet Peas, and you get a charming effect, because you follow the natural arrangement by avoiding crowding of the blooms, and putting them with the green foliage which they want to set them off. Few people are aware, until they try it, how exceedingly easy it is to spoil such a pleasing combination as this; a piece of Calceolaria, Scarlet Pelargonium, or blue Salvia would ruin it effectually. Such decided colours as these require to be grouped in another vase, and should not even be placed on the same table with the Sweet Peas; they also require a much larger preponderance of foliage to set them off to advantage than is wanted by flowers of more delicate colours.

Large Pear Tree.—At the Abbie of Lindores, on the estate of Mugdrum, are some unusually large Pear trees, mentioned 150 years ago by Sibbald in his "History of Fife." The trunk of the largest measures 17 feet 10 inches in circumference at 1 foot from the ground; at 9 feet higher up, where it branches off, it is 17 feet in circumference; and it is 44 feet in height. The spread of the branches is 53 feet in diameter; the circumference of one of the branches is 10 feet 8 inches, and that of another 8 feet 10 inches. It grows in deep alluvial soil, and bears abundant crops.

Habrothamnus Berries.—Grown on a pillar in a conservatory, Habrothamnus elegans blooms freely from the autumn onwards, and during winter matures its large and beautiful clusters of rich rosy violet-coloured fruit, which equal in size those of the Black Cluster or Verdelho Grapes, and prove it to be most useful for decoration at a season when flowers and fruit for decorative purposes are extremely valuable. Messrs. E. G. Henderson and Son some time since sent us some beautiful examples from one of their houses.

Libocedrus decurrens.—In reference to the propagation of this fine hardy tree by cuttings, which is well known to be a difficult process, a correspondent of the *Gardeners' Chronicle* observes:—"I have rooted upwards of a hundred, but I consider it a "slow-coach," and by grafting it upon Biota orientalis or Chinese Arbor Vitæ, I have plants in one-third of the time. I have had cuttings in the propagating-bed for upwards of a year, and with a callus as large as a hen's egg before rooting." This is the tree commonly called Thuja gigantea in gardens, a name which really belongs to the plant known as Thuja Lobbii.

Selaginellas.—These are excellent plants for clothing the shady walls of a plant-stove. No better illustration of this fact can be found than is now to be seen in the Sheffield Botanic Garden, where the north wall of the Victoria-house is draped with them, several species being mixed up together. We have never seen so pretty an effect produced by these refreshing-looking plants in any other situation. The wall is faced with a six-inch layer of coarse peat and rubble, with a little moss outside, the whole being held in position by strong galvanised wire netting, with rather wide diamond-shaped meshes; and the only attention required by the plants is a damping with the syringe daily.

New Double Crimson Thorn.—The writer of our account of this plant at page 117, having been publicly charged with ignorance for recommending the present purchase of plants in pots with the view to flowering them next year, we simply point out in reply, that he has not directed them to be planted out, as is assumed by his critics.

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CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

If the nights are seasonably warm, little fire heat will be required; nevertheless for plants from the hottest tropical parts, as much should be given as will prevent the thermometer from falling below 70°, making allowance for a little air being given at the same time. This will render the growth firmer, and induce the formation of blossom-buds, for without air a high temperature will tend rather to produce wood than bloom. *Begonias*, *Euphorbias*, *Justicias*, *Poinsettias*, and such plants as will be required for winter-flowering should be shifted into larger pots as they require it, keeping them slightly shaded, and rather close till they strike fresh root, and commence new growth. Keep these and all the other plants clear of insects. For *Orchids*, keep up the former temperature, air, and moisture; shade from too hot sun. Shift *Vandas* and others when past flowering.

GREENHOUSE.

For the next two or three months, the place of Pelargoniums and Calceolarias may be taken by *Fuchsias*, *Kalosanthes*, *Thunbergias*, *Lilium auratum*, &c. Some showy annuals grown in pots may be introduced for contrast of colour, so that with these, and various plants from pits and frames, there will be no difficulty in still maintaining the house in a gay state. *Pelargoniums* that are nearly past flowering should be well exposed to sun and air in order to ripen their wood; previously to being cut down, and some time before and after this is done, the soil in the pots should be dry. Dust with flowers of sulphur *Heaths* and other plants attacked by mildew. Give air abundantly, and shift immediately any plants that require more pot room.

CONSERVATORY.

Plants in the border will now be growing strongly, and will much drain the soil of its moisture; this ought to be timeously supplied, in order that the foliage may be kept in good health. Plenty of air should be given, and this will cause a corresponding loss of moisture from the air of the house, which must be provided against by syringing the foliage, and also the surface of the soil. By these means good substantial growth will be ensured; but at this season it will also be rapid, and will require to be regulated, so as to be developed where it is desirable, and prevented where it is not so. In this way the energy of the plants will be nowhere misdirected; no growth should be made to waste at any period of the season, but, more especially at this, the most favourable for the complete elaboration of the sap, for originating blossom-buds and the latent rudiments of flowers. Many of the usual inmates of the conservatory may now be placed out of doors.

PITS AND FRAMES.

These will now be cleared of bedding plants, and the best opportunity is afforded for taking off the lights, painting the sashes and rafters, and whitewashing the walls. Previously to this, the interior might be fumigated with sulphur, provided the pit is well exposed to air, and a strong fire occasionally kept on before plants are introduced; for greater security some delicate-foliaged plants of various kinds might first be tried, for even recently-built walls have proved, before they were seasoned, injurious to plants. When all is safe the pits may be occupied with seedlings, or with cuttings, and pots of anything that requires to be placed near the light.

FORCING.

Pine Apples.—When succession plants fill their pots with roots, shift them into fruiting-pots. Give plenty of air with sun to plants of which the fruits are ripening. Supply no more water than is just sufficient to prevent suffering from dryness. Let the temperature, top and bottom, be about 85°, but the top heat may rise to 90° by sun heat. Plunge a thermometer, and watch carefully that the bottom heat never gets too high; if likely to do so remove the pot, and place it on a smaller one plunged mouth upwards. Plant crowns and suckers, as soon as their twisted-off end becomes dry, into three-inch pots. *Vines.*—Keep the house dry wherein the fruit is ripe or ripening. Dryness is at that stage natural to the Vine in its native climate, and from this condition two important results are obtained—the fruit acquires good flavour, and the wood is firmly ripened. But with regard to later vineries where the fruit has yet to swell, the leaves should also be kept in a growing state, for on the good growth of the leaves mainly depends not only the swelling, colour, and flavour of the present year's crop, but also the success of the next and future ones. The richest border, then, can be of no use without leaves; but grow plenty of leaves well, with sufficient light, air, and moisture, and the whole plant will grow; the roots in that case will push in almost any soil, and the spongioles will insinuate themselves and grow in crevices of rocks, and thence collect juice to an amazing extent in countries so hot and dry at certain seasons that, according to parliamentary evidence, wine was used instead of water to make mortar, the former being plentiful, cheap, and at hand, and the latter scarce and the dearer of the two from expense of carriage. Briefly it may be stated, that the berries cannot draw up and elaborate sap for their own use, nor for any other purpose: that is specially the office of the leaves. Since, therefore, the motion of the sap from its absorption from the soil in its crude state by the spongioles, to its return in an organisable condition from the leaves, depends on the

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latter, nothing more need be said with regard to the great care that ought to be taken of them. *Peaches and Nectarines.*—When the fruit is all gathered syringe the trees so as to clean them thoroughly of insects. If dry at the root a moderate supply of water should be afforded, so that without encouraging too late a growth, the leaves by the natural heat of the season may exercise a healthy action till they drop, when the buds for next year shall have had all that they can obtain from this year's foliage. *Figs.*—Syringe till the fruit begins to form. *Cherries.*—Keep the foliage clean by syringing. *Melons.*—Water thoroughly the beds before the fruit swell off, so that water will not be required when the process of ripening commences.

KITCHEN GARDEN.

All vacant ground should now be occupied, the various crops kept clear of weeds, and the surface should be frequently stirred. Sudden heavy rains run off without sinking in to moisten the ground at the extremities of the roots, and in that case plants are apt to suffer; watering should, therefore, be more especially attended to. Sow the latest crop of *Broad Beans*, and in the middle and end of the month the principal winter crops of Endive. Sow early in the month a few of the Black Belgian *Kidney Bean* for a late supply. Sow *Lettuces*, *Radishes*, and *Spinach* for succession. Sow *Cabbages* in the first week for Coleworts, if not done before. The principal sowing of Early Battersea, or Vanack, and of Red Cabbage for autumn planting should be made in the last week; the 27th, on the average of many years, has proved the best time; but in late or northern situations the middle of the month is preferable. Sow some Early Horn *Carrots* for drawing young. Plant out the main crop of *Celery*. Peg down the shoots of *Vegetable Marrows;* they will root at the joints, and continue longer in bearing.

FRUIT GARDEN.

Regulate the summer growth with a view to produce a uniformity of vigour throughout the tree, by checking the vigour of those shoots that are too strong, and encouraging those that are weakly. It was a mistaken notion to encourage over-vigorous shoots to grow in order that they might exhaust their excess of vigour by their own growth. There could not be a greater error than this in the management of trees, for the more sap that flows to any particular branch, the more new channels will be formed for an increased future supply. The sap flows more readily into a vigorous shoot than into one that is weak; if a shoot is long and healthy it will have a proportionate number of leaves, and its growth will be in proportion to the number of leaves connected with it; reduce the length of the shoot, there will of course be fewer leaves, and the growth will consequently be diminished. Then, if the weakly shoot could be strengthened, an equality of vigour would be approximated. A shoot can only be invigorated by increasing the foliage directly or indirectly connected with it. Syringe *Wall Trees* after 4 P.M. Set traps for earwigs. See that the upper shoots of pyramids are shortened much morethan the lower. Use tobacco dust for green fly. Mulch wall-fruit borders with stable-litter, and then water plentifully through it. Bud *Apricots*, then *Cherries*, *Plums*, *Peaches*, and *Nectarines*. Attend to untying and supporting grafts. Layer *Strawberries;* stop the runners beyond the rooted joint.

FLOWER GARDEN.

The operations in this are mostly reduced to the routine of mowing, sweeping, and rolling. Tie up the stems of herbaceous plants requiring support, not in close bunches, but so as each stalk may have freedom to grow. Clip hedges; regulate evergreens; train creepers. Bud Roses, and remove suckers as soon as they appear, otherwise sap will be diverted from its legitimate channels. Weeds in walks can be most readily destroyed by salt, but if it can be done by weeding, and keeping a smooth firmly rolled surface it is better.

FLORISTS' FLOWERS.

Antirrhinums. — Propagate by cuttings under a hand-glass or frame. *Auriculas.*—Protect the plant from excessive wet. The soil intended for repotting should be frequently turned over when moderately dry. *Carnations and Picotees.*—Attend to with water; weak liquid manure may be given occasionally; protect the blossom from sun and heavy rain; propagate by layering. *Dahlias.*—Water over the foliage towards 6 P.M., and see that the ground is not too dry. Plots for the destruction of insects, particularly earwigs, cannot be laid too soon; there may yet be few, but in the early part of the season the destruction of a few stops the increase of a vast number. *Hollyhocks.*—The propagating of these may now be extensively proceeded with. The small side shoots will afford cuttings, whilst the removal of these will throw strength into the main spikes. *Pansies.*—Plant out the first-struck cuttings, which will bloom in September and October; they strike with great facility in those months, but, although, precarious to strike now, it is desirable to put in all that can be made in order to fill up deficiencies caused by plants dying off. *Pinks.*—Good plants can be most readily struck by cuttings under bell-glasses, on very slight bottom heat. If the top of the leading shoot is carefully taken off, a large number of small shoots will push, and these will strike readily by the end of the month. *Roses in Pots.*—Hybrid Perpetuals and other Hybrids should be plunged, and the pots mulched over in the open air by the 1st of the month, and their shoots may be staked outwards, so that the wood may be well ripened for early blooming. The soil should be made sufficently moist and no more.

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F Walker Lith 16 Mason Street

Rosemary Russet Apple.

ROSEMARY RUSSET APPLE.

WITH AN ILLUSTRATION.

The subject of our present illustration is one of those fruits, of which there are many, that have never acquired the notoriety which appears to be necessary now-a-days, before anything good is appreciated. It is not because it is new, neither is it because it has been hitherto unknown, that it is so little cultivated; but simply because it has not been fortunate enough to meet with some enterprising trader to make it his own, and to benefit himself thereby. We have looked through the lists of our leading fruit-tree cultivators in vain to find it; and except in Ronalds' "Pyrus Malus Brentfordiensis" and Hogg's "British Pomology," there is no record of it to be found. What was the origin of this admirable Apple we have never been able to ascertain, neither can we discover when it first became known. The earliest notice of it is by Ronalds, who published a figure and short description of it in 1831, and who had cultivated it for many years previously. As a dessert Apple it is one of the very best. Its size, form, and colour, as faithfully represented in our plate by Mrs. Dix, strongly recommend it, and it only requires to be known to find a place in all good gardens where only the best fruits are grown. The following description from the "British Pomology" will, with the engraving, convey all the information we possess respecting it:—

"Fruit below medium size, ovate, broadest at the base and narrowing obtusely towards the apex, a good deal of the shape of a Scarlet Nonpareil. Skin yellow, tinged with green on the shaded side; but flushed with faint red on the side exposed to the sun, and covered with thin pale brown russet, particularly round the eye and the stalk. Eye small and generally closed, woody, with erect segments, set in a narrow, round, and puckered basin. Stalk very long, inserted in a round and wide cavity. Flesh yellowish, crisp, tender, very juicy, brisk, and sugary, and charged with a peculiarly rich and highly aromatic flavour.

"A most delicious and valuable dessert Apple of the very first quality; it is in use from December till February."

H.

SALVIA PATENS.

What a splendid bed this fine old plant makes! Large beds when well filled soon become masses of intense blue, and are then very striking objects. This is one of those sterling plants that ought to be in every garden. Though not quite hardy, it is one of those plants that can be preserved through the winter by every one. Towards the end of October a dry day should be chosen for lifting the roots, all the old flower-stems should be cut clean off, and all the loose soil shaken off the roots. They should then be laid for a few days to dry; and afterwards be packed away in a box, putting some dry sandy soil between the roots. The box may be put away in any convenient place where the frost cannot enter, and may remain there without further care until the following spring. Early in March the roots should be taken out of the box, potted, and placed in a warm pit or vinery, where they will speedily begin to grow, so as to furnish cuttings if an increase of stock be desired. Cuttings strike very readily in heat, and if potted-off as soon as rooted, and stopped and shifted into larger

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pots when necessary, they make fine plants for turning out in beds towards the end of May. The easy way in which this plant can be kept through the winter is a great recommendation in its favour to all lovers of gardening, and particularly to those who have only very limited space for keeping plants in winter, and who require all the room they have for Variegated Pelargoniums, and tender bedding plants. Salvia patens when well grown in pots makes a fine plant for the conservatory, and lasts a long time in flower. Young plants should be chosen and kept well stopped back to make specimens, and should have liberal pot room.

Stourton. M. Saul.

VARIEGATED ZONAL PELARGONIUMS AS BEDDING PLANTS.

The rage for getting a stock of these beautiful and showy plants for bedding purposes is now at its height; but their high price when first let out deters many from using them. It is no joke to pay two guineas for some of the highly certificated ones, and afterwards to find, from their sameness of variegation, that they are no better than Mrs. Pollock or Sunset for bedding purposes. I have now Lady Cullum and Lucy Grieve planted side by side, and they are as nearly alike as two Peas of the Ringleader and First Crop class. [They are, however, quite distinct, as will be seen when they get established.] As far as my experience goes in bedding variegated Zonals, Gold Pheasant is as effective as any of them, and at the present time far cheaper. The "Bicolors," or Gold and Bronze Zonals, of the Beauty of Oulton type, are, in my opinion, more likely to be useful than the "Tricolors." This, however, time will prove. And now that we know how to go to work in raising new Bicolors and Tricolors, every gardener who has the means, and the time to spare, may soon have a batch of his own. Last year, having raised some very dark-zoned seedlings of the Nosegay and Zonal sections, I have used them as seed parents, and expect to have scores of new "Tricolors" from the seeds already sown and now breaking into variegation. I have a theory respecting "Tricolor," or rather Variegated Zonal Pelargoniums, which I should be glad to have ventilated —namely, that we are indebted to Cerise Unique and Commander-in-Chief for the origin of these fine coloured-leaved plants. If examined under the microscope it will be found that these varieties are full of colouring matter, both in the leaves and stems; and being crossed with some yellow-leaved variegated sport, they may have given origin to all the Tricolors. Be that as it may, all honour to Messrs. Grieve, Wills, and others for showing us the way to raise them. We may soon expect to hear gardeners' little boys and girls repeating the following nursery rhyme :—

> "Snip snorum, hey tricolorum;
> Daddy's raised a Tricolor will carry all before him."

There is another inducement besides that of the high prices of the new "Tricolors" and "Bicolors" for a gardener to raise varieties of his own—namely, that he may show in his bedding-out some novelty not to be found elsewhere. Two years ago I detected a variegated sport on the Imperial Crimson Nosegay, and have now propagated as many plants as to furnish a bed of it this year. This variety only grows from 6 to 8 inches high, and the leaves are as white in their variegation as those of Bijou. When it is planted out, mixed plant for plant, with Lobelia speciosa, the

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effect is the most charming I have ever seen in a small bed. In such cases as those hinted at, there is the pleasure (rather a selfish one perhaps), of knowing it is improbable that any other grower will possess a bed like our own. From the great want of novelties in mixed bedding, any new variety of dwarf habit, and of different colour from the common run, will always have a telling effect when first seen.

Welbeck. WILLIAM TILLERY.

THE VENOM OF TOADS.

I NEED hardly mention that toads are considered to be venomous, though they neither bite, spit, nor sting. It is hard for creatures so harmless and useful to have been thus misrepresented, even in all ages. I consider, however, that the idea of their venomous character arose from the fact that toads when frightened or suddenly attacked eject urine, and also that when they are severely injured there exudes from the skin on their backs a very acrid milky kind of matter. This is so pungent, that it makes dogs froth at the mouth, and cast out a toad if they happen to have seized one. Perhaps this matter is like some other poisons, harmless to the touch, though deadly in the stomach. I once gave a tame heron a toad, after which he suddenly died. Again I tried the same on another heron, which soon sickened and cast up the toad. I have mentioned this before in another publication, and wish now to observe that the venom of the viper is harmless in the stomach, as also is that of the honey bee, which contains far more poison for its size than the adder, while both may be fatal in the blood either by bite or sting. It is said, moreover, of toads, that they can live in poisonous air in which no other creature could exist. This may arise from the fabulous notion of the ancients respecting the toad hatching the basilisk's or cockatrice's eggs, and that the supposed half serpent and half cock afterwards changed into a huge toad, which lived in caves and wells, and filled them with deadly poison—once a common belief even in this country.

That, however, is not so ridiculous as some of the other vulgar errors or prejudices of our time respecting toads, besides that of their being venomous. The worst of these is that they are imps or messengers of evil: hence boys will always stone poor toads to death. I pass over others to notice that of toads surviving without air, in contradiction to the law of nature, that "air is the life of all living." There are so many instances recorded respecting toads having been found in the hearts of trees and in stones, that one is forced to believe it, though contrary to reason. I may mention, however, that I have repeatedly sealed up toads in small flower-pots, and also buried them deeply in the ground, both in summer and late in the autumn, and all of them have died, excepting those to which a little air was admitted.

Cossey Park. J. WIGHTON.

NEW PELARGONIUMS.

THE spring of 1867 has been singularly fertile in new Pelargoniums of a high-class quality. Show after show has seen them produced in profusion, but yet of genuine excellence; and it is the object of this paper to place before the readers of the FLORIST AND POMOLOGIST a list of these new flowers, arranged for easy reference, and as far as this can be done in a series of groups having regard to the ground colour of the flowers; in other

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words, to classify them according to the prevalent shades of colour presented. The following kinds have all received first-class certificates at the exhibitions of the Royal Horticultural Society, the Royal Botanic Society, the Crystal Palace, or at the meetings of the Floral Committee, and, as just intimated, they are arranged according to the prevailing hue of the lower petals.

To the Salmon-coloured flowers belongs the premier variety of the year—namely, *Emperor* (Foster), pale rosy salmon, the upper petals having a well-defined medium dark blotch, regularly margined with fiery crimson carmine, and broadly edged with pure salmon rose; flowers large, pure, and very smooth; a beautiful and striking flower, the colours on the upper petals being very regularly defined. Another fine variety is *Sœur de Charité* (Foster), a novel and beautiful orange salmon flower, pencilled with dark; top petals dark, margined with bright rose, and having a white throat faintly pencilled with rosy lines; a few of the flowers have been a little rough on the edges, while the majority were smooth and of fine quality; habit excellent.

Of White flowers there is one of fine quality—*Hermit* (Beck), a large flower, the lower petals white, slightly suffused with pink; dark top petals, with margin of fiery carmine, and broad edging of pink; flowers stout and smooth, and the habit good.

Flowers of a Violet hue, or of shades of rose allied to it, are represented by the following:—*Empress* (Foster), salmon rose suffused with violet, and pencilled with orange crimson; dark top petals, the blotch lit up with fiery orange, and having a narrow edge of rosy pink; flowers large, very smooth, and of fine quality; good habit. *Example* (Hoyle), a flower of very fine shape and quality, the lower petals rosy pink suffused with violet, intense dark blotch on upper petals, bordered with fiery crimson, and margined with a slight edge of violet, a conspicuous white centre; very free-blooming, with bold effective trusses. *Hermit* (Foster), fiery carmine, suffused and edged with pale violet, and stained with dark; upper petals intense dark, shaded and rayed with bright crimson, and edged with pale pink; large white centre; free, and of good habit. *Queen of Roses* (Beck), lower petals vivid rosy crimson, the upper petals with rich dark blotch, shaded and margined with fiery crimson, the centre rayed with purple; a very fine and striking shade of colour; medium-sized flower, a little rough. *Rob Roy* (Foster), rosy violet, with small blotch of pale rosy crimson on each petal; upper petals dark margined with rosy crimson, which runs into the dark blotch, and edged with rosy pink; a fine, bold and stout flower.

Stained flowers have received good accessions in the following:—*Grandee* (Foster), clear pale pink, the upper petals pencilled and stained with crimson, and having a regular and smooth edge of pink; flowers of fine form and substance. *Joan of Arc* (Foster), deep rose, suffused with purple and stained with dark; upper petals dark, the blotch running into a vivid fiery margin, edged with deep rosy violet; a very bright and pleasing shade of colour; flowers large, stout, and bold. *Lady of Quality Improved* (Beck), a very finely formed and smooth flower, the lower petals vivid carmine rose, stained and pencilled with dark crimson; dark top petals, with narrow rosy crimson margin; habit good.

The Spotted flowers have been augmented by—*L'Empereur* (Beck), warm pink slightly blotched with rosy crimson; upper petals dark, with margin of fiery crimson, edged with rosy pink, conspicuous white centre; a large and bold flower. *Man of Mark* (Hoyle), a cheerful-looking but somewhat small spotted flower, bright carmine rose spotted with rich dark; upper petals dark, with broad margin of glowing rosy crimson; the habit somewhat spare and drawn. *Victor* (Hoyle), a very fine spotted variety, rosy pink, heavily suffused with carmine, and blotched and pencilled with rich dark; upper petals glossy dark, with narrow margin of rosy crimson, white centre; the flowers bold, showy, and of fine form, and the habit good.

A first-class certificate was awarded to *Magnet* (Dobson), for its obvious good qualities, both as a market and decorative plant. The colour is vivid crimson of a very rich and striking hue, it flowers profusely, and the habit is excellent.

The following received second-class certificates, together with some others that subsequently received the higher award:—*Filomena* (Beck), a somewhat novel, but beautiful shade of colour, bright rosy violet, with regular dark blotch on each segment; glossy dark velvet top petals, with narrow edge of vivid rosy crimson, white centre; good habit and very free; a flower of good character. *Heirloom* (Hoyle), a large and bold flower, with lower petals soft pale rose, dark top petals, bordered with fiery crimson, conspicuous white centre; a fine exhibition variety. *Prince Consort* (Foster), carmine rose, with a just perceptible shade of violet, a medium-sized blotch on the top petals, with broad fiery margin becoming paler towards the edge, and a white centre; good habit, and free bloomer.

The very wholesome practice of awarding certificates to seedling Pelar-

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goniums only of the second year, does not prevent the appearance of flowers of the first year at the shows, as it is invariably the rule to empower the judges to give commendations to flowers having special and promising features.

A commendation was given to *Needle Gun* (Hoyle), a painted flower, with deep orange lower petals, stained with dark; upper petals dark, with narrow edge of fiery rose, small flowers, but of good shape, and very smooth: commended for its hue of colour. Other yearling flowers, which are introduced here in order to confine them under one head, were:—*Patrimony* (Hoyle), a large and bold flower, very smooth and stout, that promises to make a first-class variety; lower petals pale rosy pink; dark top petals, with medium blotch, lit up with fiery orange crimson, and having a narrow edge of pale rose—a flower not without a defect or two that another year's growth may possibly do much to remove. *Miss Hervey* (Hoyle), a large stained flower, not in good condition, being loose and thin, but having a very striking white throat. *Prince Impérial* (Dobson), pale orange salmon lower petals; rich dark top petals, margined with fiery rose; medium-sized smooth flowers, and good habit; a very promising flower. *Lord Derby* (Dobson), a rich-coloured small stained flower, but badly shaped.

The following varieties are selected as the best of those not certificated, but many of which will, no doubt, be sent out in the coming autumn, as the majority have no mean pretensions to high merit, and possibly were not shown as seedlings in their best condition. These, also, are arranged as far as possible according to the hue of the ground colour.

Of High-coloured and Stained flowers the following have appeared:—*Bacchus* (Foster), a stained flower, with a large and bold white throat, rich dark top petals, and bright rosy edge, of good habit, and blooming freely, but the trusses had not more than three pips on each. *Darkie* (Beck), intensely dark flowers, the lower petals broken into and lit up with vivid crimson, and having a narrow edge of the same; the upper petals intensely dark; flowers small but very striking. *Captain John* (Hoyle), a stout and well-formed stained flower of remarkably good quality, and very free blooming; bright rose suffused with pale violet towards the margin, and blotched and stained with dark; the upper petals dark, rayed with bright rosy crimson, and having a smooth and regular outer edge of pink. *Etrennes* (Hoyle), vivid deep carmine, stained with dark; rich dark top petals, with narrow edge of bright rosy crimson, and striking white centre; the flowers as shown somewhat crumpled, but a showy variety. *The Peer* (Foster), a very fine and stout stained flower of a rich hue, with bold and smooth flowers, but not shown in good condition. *Prince of Orange* (Beck), a small flower, but noticeable for its superb shade of dark orange scarlet, with broad edging of dark scarlet to the upper petals; a rich and striking hue of colour. *Prince of Orange* (Hoyle), a good flower, too much in the way of John Hoyle, but with more dark colour in the lower petals, while the top petals are not so good. *Success* (Hoyle), pale rose, heavily pencilled with dark, the white centre somewhat confused by being run into with the dark pencilled lines; top petals dark, with narrow margin of pale rose; quite novel in character, and very free blooming.

The following are of Carmine and bright Rose shades:—*Aspasia* (Beck), rosy pink, with dark top petals, margined and run into with bright rosy crimson, edged with pink, and having a conspicuous white throat; a large and bold flower. *Autocrat* (Foster), pale carmine rose, stained with fiery crimson, and conspicuous white centre; top petals dark, margined with fiery crimson, which breaks into the dark blotch, and broad edging of pink; very pretty flower, but having a somewhat sportive tendency. *Calypso* (Beck), clear orange carmine lower, and dark top petals, with broad rosy crimson margin, run into by the dark. *Northern Star* (Foster), a flower of good quality, bright orange scarlet, with slight dark blotch; upper petals dark, margined with glossy rosy scarlet; a taking flower, but rough on the upper petals. *Rival Queen* (Foster), a very bright-looking flower, having veined rosy carmine lower petals, richly stained with dark, white centre suffused with violet, and dark top petals, with narrow margin of bright crimson carmine.

The Spotted class receives the following additions:—*The Cardinal* and *Firefly*, both from Mr. Foster, two self-coloured flowers, belonging to the French class; the latter very bright, having vivid rosy carmine flowers, with a small dark blotch on the upper petals, the flowers small, but plentiful; the first-named with a somewhat dark colour irregularly distributed over the top petals; habit good, and very fine; they will make good decorative or market kinds. Mr. C. Kimberley, of Stoke, near Coventry, showed a good-looking spotted variety named *Grand Arab*, having light lower petals, with a medium dark spot on each petal, lit up with fiery rose, dark top petals margined with fiery rose, and edged with pale

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pink; flowers smooth and of good shape, and free blooming. Another spotted kind was *Patrician* (Hoyle), having bright rosy carmine lower petals, pencilled and slightly spotted with dark, and having a very narrow edge of pale violet; upper petals glossy dark, with very narrow edge of deep rosy crimson: a fine and effective flower, but as shown the truss was too small.

Of Salmon-coloured flowers there were:—*Archduke* (Foster), a large and somewhat coarse flower, having bright salmon lower petals, stained with dark, and a conspicuous white centre. *Autocrat* (Foster), in the way of Hermit, but not so good, has a very sportive tendency. *Marksman* (Fraser), rosy salmon, slightly veined with dark; top petals dark, with broad fiery margin and edge of pink; flowers small but very free-blooming, and both trusses and habit good. It lacks novelty of colour, but will be valuable because so free in blooming. *Beauty* (Beck), something in the same way as the preceding, but having more orange in the lower petals the colour is thereby brightened and made more striking. though the hue pales with age; free-blooming, with good trusses, but the habit somewhat spare. *King of Trumps* (Foster), and *Troubadour* (Foster), are beaten by Emperor; though they have more carmine in the colour of the lower petals, and some claim to distinctness, they still run in the same way, while inferior in quality.

Flowers with a delicate ground were:—*Electra* (Beck), a very beautiful flower, though not of first-rate properties; lower petals delicate pink, slightly blotched with carmine on each petal; dark top petals run into and margined with fiery crimson, and broadly edged with pale rosy pink; a very promising exhibition kind. *Empress* (E. G. Henderson & Son), has medium-sized white flowers, the upper petals marked with rosy crimson, the flowers much crumpled or waved, and yet very attractive; it blooms freely, and will apparently make a good forcing kind. *Woman in White* (Hoyle), pure white lower petals, the top petals fiery rose shaded with dark; pure in colour, but the flowers thin.

Shades of Rosy Violet are represented by:—*Magician* (Foster), having a rich shade of rosy violet, but not shown in good condition, the upper petals having a tendency to become crumpled, and the white centre was confused and ill-defined. *Mignonette* (Beck), a small flower, but of a striking shade of colour, rosy violet lower petals, dark top petals. broadly edged with bright rose, white centre. *The Prelate* (Foster), is a very striking flower of massive build, but somewhat crumpled on the edges as shown, and, though a good-sized and bushy plant, no truss had more than three flowers, and some only two—a radical defect; lower petals rosy violet crimson, stained with dark; upper petals dark, with narrow edge of bright rosy crimson; habit good. *Robin Hood* (Foster), a very pleasing hue of colour, the lower petals violet pink, slightly suffused with carmine; dark top petals with a fiery crimson margin, white throat; good habit, and free blooming.

The production of new Fancy Pelargoniums has been confined almost entirely to Mr. Turner, of Slough, and any awards to seedlings that have been made, have gone to him.

The following received first-class certificates:—*Belle of the Season* (Turner), pale ground lower petals with rosy carmine blotches; upper petals rosy crimson; good form and substance, and very free blooming. *Brightness* (Turner), bright rosy carmine, the lower petals having a distinct narrow edging of white, and the centre being pure white; a flower of excellent form, smooth, and stout, and will make a good exhibition variety. *Perfection* (Turner), the top petals claret crimson, with narrow margin of rosy lilac; lower petals veined and dashed with rosy claret; flowers of fine form, smooth, and stout, and habit excellent. *East Lynne* (Turner), a flower somewhat in the way of Perfection, but rather larger, the lower petals rosy crimson, suffused with purple, and slightly edged with pale rose: top petals dark rosy crimson, with a pale edge; flowers stout, smooth, and of fine form; excellent habit. *Pink Perfection* (Turner), large, bright, rosy-pink flowers of fine form and quality, with white centre; bold and very striking, of good habit, and a fine exhibition variety. *Marmion* (Turner), rosy crimson suffused with violet, and margined with pale rosy lilac, conspicuous white throat; flowers large and stout; a variety that may be termed an improved Godfrey Turner, though not so dark in colour; it also has a pure white centre, instead of the somewhat confused bluish centre of the older flower; of a very pleasing shade of colour, but a little crumpled on the edges.

Second-class certificates were awarded to *Maid Marian*, upper petals rose dashed with violet; lower petals white, spotted and veined with bright rose; a good flower. *Madame Vilda*, dark rosy crimson, with pure white throat, and very narrow edge of white round the flower; flowers small, but well-formed and smooth; very free blooming, and good habit.

Two very free-blooming varieties were shown by Mr. Turner—viz., *Fanny Gair* and *Excelsior*, both light flowers, very prolific of bloom, but wanting form and smoothness; and another named *Leotard*, having large rosy carmine flowers suffused with violet, the flowers

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large, but wanting outline and smoothness. *Mrs. J. W. Todd* (Downie & Co), had pure white lower petals, blotched and margined with rose, and rosy violet upper petals. Messrs. Dobson and Son exhibited the following:—*No.* 1, deep rose self flowers, with a purple tinge round a white throat, and narrow edge of white, flowering freely, but spare in the habit; *Homer*, in the way of the foregoing, but having the lower petals broken into by lines of a pale colour; and *Achievement* and *Silver Star*, two light flowers of but little character.

Quo.

GREEN GOOSEBERRIES.

During the lifetime of some of our market gardeners, the leafstalk of the Rhubarb, which is now grown by the acre and brought to market by the ton, was not a town vegetable; the "million" had to go without that cheap raw material for tarts, and people were considered to have been in the way of good luck and good living, who got Green Gooseberries for tarts. My object at present is not to cry down Rhubarb stalks as tart stuff, but to cry up the better article, so as to get, for making tarts, the green fruit instead of the green leafstalk.

If any one in the possession of a plot of ground were asked if he could grow Gooseberries, he would certainly answer in the affirmative, and no doubt he would succeed without special tuition; but the culture for ripe Gooseberries differs in many points from the culture for tart Gooseberries. The Lancashire Gooseberry fancier will tell you to a fraction of the ounce the large size of his "Roaring Lion," but this is just the reverse of what is considered best for tart Gooseberries. They should be small, their growth should be stunted, so that when other Gooseberries are full-sized, they should be half size, and never get to be full-sized. The goblet-shaped Gooseberry bush, hollowed out by pruning to give the fruit every opportunity of growing and ripening, has to be set aside, and the spiny shrub has to be treated like a Thorn hedge, the shoots long and straight, and thickly set. In short, it is a Gooseberry hedge that is wanted, and that a poor one, for if it is over-manured it will cease to be the crabbed style of thing that produces small fruit out of season. The green kinds are best, and the yellows come next, but the red kinds should be avoided, or used first before they show any of their ripening colour.

Many years ago my father planted a hedge of Gooseberry bushes to prevent a neighbour from encroaching, and he put in a lot of spare bushes and a great many cuttings of full length, just as they were pruned from the Gooseberry bushes, and a matted thicket was the consequence, very prolific indeed of spines; but a very unlooked-for result was obtained, for after all other Gooseberries had got large and sweet, these were small and sour, and made excellent tarts. Any quantity of Gooseberry cuttings can be got in winter, and, if they are carefully put in the ground they will all strike root, and make good plants in the course of a short time. If any one possessed of a stock of plants will keep the pruning knife away from them, and get them into hedgerow fashion, he will soon get a weight of small fruit off them, for the plant is a sure cropper, and its *forte* lies in the multitude of spines and small sour berries that it can produce. It seems quite at home at this kind of work, and can act unaided by high cultivation.

The price of green Gooseberries is extravagantly high, yet it is quite astonishing to see the quantities sold, and the large size they are. A tart Gooseberry should not be larger than a Hazel nut, but these I allude to are as big as Walnuts, and need to be sliced like Cucumbers before going into the pie-dish. As the fruit is only grown to half its natural size for tarts,

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and only occupies about half the time upon the bush that the ripe fruit does, it does not exhaust the plant; and if the caterpillar can be kept down the plants will go on fruiting for a great many years, for the Gooseberry plant is long-lived, and remains a stunted shrub, although never pruned. It is less than the Currant in size, and considerably longer lived. It seems as if it could not aspire like the smooth barked Currants, having to guard itself with pointed armour, which it has to manufacture as it goes on. The subject only wants to be named, and the line of distinction drawn between the culture for ripe fruit and the culture for green, and the work will get forward in due time. It is sound practical advice, and no one will be disappointed that gives the thing a fair and honest trial.

Salford. A. Forsyth.

PRIMULA CORTUSOIDES AMŒNA.

This beautiful hardy herbaceous perennial was introduced from Japan by Mr. J. G. Veitch, and was noticed by the late Dr. Lindley in the following terms:—"Among the pretty things from Japan brought home by Mr. J. G. Veitch, were seeds of a Primrose of striking beauty, with leaves something like those of P. sinensis in colour and texture, and with trusses of flowers rivalling in colour the brilliant Azalea amœna. Weak plants of it having blossomed, it proves to be a glorious form of the old forgotten Primula cortusoides, the delight of our boyhood, because not only of its singular beauty, but because it was not miffy, like other northern Primroses. Two forms of it have been raised—namely, *amœna*, with flowers of the richest crimson, and twice as large as those of the original plant; and *striata*, with smaller flowers of a delicate pink colour, striped with lines of crimson. This plant must have a great future, for in the hands of such growers as we now have, it is almost certain to break into new colours, and to assume new forms and proportions. It is evidently as hardy as a hedge Primrose, for it has been found wild, not only in Dauria and Japan, but in many parts of Mantchuria, flowering in May and June, near the rivers Amoor and Schilha, the most rigorous of climates." (*Gardeners' Chronicle.*)

Since the above remarks were published the plant has gone on increasing in strength and beauty, till now it may, without the least exaggeration, be designated as one of the finest of hardy flowering perennials. The figure annexed gives a fair idea of its form and general character, but none whatever of the rich colouring of its flowers.

There are three very distinct varieties of this plant already known in cultivation—namely, *alba*, with pure white blossoms; *grandiflora*, with large, drooping, concave, lilac-purple blossoms; and *albida*, with greyish white drooping blossoms. All of these are very beautiful, but none, perhaps, surpass in beauty the original form, with its large flowers of a deep magenta rose.

Mr. Fleming, of Cliveden, has borne testimony to the hardiness and effectiveness of this Primrose in the remarks which we here quote to complete our brief history of the plant:—"We have had plants of it out for the last two winters, and it formed this spring one of the most charming beds we have had. The first plant was sent to us by Mr. Veitch in the autumn of 1864, in order to try its usefulness as a spring decorative plant, and we have had it growing outside since the summer of 1865, or as soon as we could get a duplicate; but either for the early spring borders or in-doors it is a great acquisition. Our practice has been to remove the plants, after blooming, to a north border, where they are planted in a good mixture of

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rather heavy loam, peat, dry cowdung, and sand. It must be borne in mind that the habit of the plant very much resembles that of the Lily of the Valley—namely, that it forms flowering crowns in the summer, and loses its leaves in the autumn, therefore the roots are at work all the summer, and, I think, during the winter also, for it is surprising with what

balls it may be lifted in spring. We have generally put a small wooden frame round the roots to prevent the workmen treading on the crowns. The leaves with us begin to come up in March; they are of a rich green,

and fringed, so as very much to resemble some of the Ferns. The bed should be a little shaded from the hot sun, which robs the flowers of their rich mauve colour. The flower-stems should also be tied, otherwise the wet will break down the heavy heads of bloom."

M.

THE PRODUCTION OF ROOTS FROM VINE STEMS.

The late Dr. Lindley endeavoured to prove in his "Theory of Horticulture" that the production of roots from the stem of the Grape Vine is owing to the coldness of the border, coupled with a warm damp atmosphere. This opinion has been endorsed by many gardeners, either upon the supposition that a doctor cannot err, or, what is more probable, that there has not occurred an opportunity whereby they could test the validity of the assertion.

With me it has so happened that I have been able to detect the fallacy, and to prove satisfactorily that the coldness of the border exercises no influence whatever, but rather that the presence of such roots is attributable to warm humidity alone. We have here an early vinery where the roots are confined entirely to the inside of the house. The soils rests upon a layer of large stones 15 inches deep, through which are carried two three-inch hot-water pipes, sufficient to maintain a ground temperature of 80°, were that required.

Now the question may be asked, If the emission of roots from the stem be caused by an undue depression of heat in the soil, how does it come to pass that in this house they show themselves in such an abundance, many measuring 9 inches long, while the bottom heat is never allowed to sink below 70°? Forcing usually begins about the middle of November, and hence is carried on through the murky days of winter, when there is little or no sunshine to carry off an excess of moisture. Surely, then, the bare fact stares us broadly in the face, that a hot damp atmosphere is the sole and only cause by which stem roots are produced.

In a second vinery where the Vines are planted in an outside border, scarcely or ever do the stems emit roots, owing to a decrease of internal humidity. In the present case the soil is slightly warmed by the application of fermenting material to the surface of the border, but the amount of heat is not so great, nor its action so regular, as that supplied by hot water.

I may just add, that by reasoning theoretically we are unavoidably drawn to the conclusion, that the roots of the Grape Vine should, to keep the vegetable machinery in good working order, be surrounded by the same temperature as that of the branches, or even a little advance of it. But for such a course I have never observed any practical necessity.

The Gardens, Tortworth Court. A. Cramb.

[Surely the production of roots from Vine stems arises mainly from the imperfect action of the proper roots; and this may sometimes be occasioned by coldness of the border, but in the case above referred to might have arisen from drought.—Eds.]

THE NEW HYACINTHS OF 1867.

These have been very sparingly produced this year as compared with previous years, the only exhibitor of them during the past spring having been Mr. William Paul. As is usually the case now, the new varieties

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belong to the Single class, so very rarely are double flowers produced that show an advance beyond what we already possess.

The Red-coloured Hyacinths—a division that comprises shades from deep crimson down to blush, have been well represented. *Linnæus* (W. Paul), is a magenta crimson, the sepals slightly edged with a paler colour, the pips small and somewhat rough on the edges, but forming a close and showy spike; good habit; awarded a second-class certificate. *Prince Albert Victor* (W. Paul), is of a glossy crimson, a line of colour of a darker shade running along the centre of each sepal; bells stout and finely formed, making a bold and symmetrical spike; awarded a first-class certificate, and probably the finest of all the new reds. To the same division belongs *Grand Vainqueur* (W. Cutbush & Son), another sport from the old single white flower of this name; pale ground colour, with stripe and shading of pink; bells of fine form and substance, forming a good spike.

The Single Blue division has been well represented by *Blondin* (W. Paul), which is of a very pale or silvery lilac blue, the tube and exterior of the sepals violet; bells large, stout, and well reflexed; bold and showy spike, and, like the generality of the single blue flowers with large bells, the foliage grows tall and strong; awarded a first-class certificate. This variety and those called *Princess Mary of Cambridge* and *Lord Cowley*, bear a great resemblance to each other.

The Mauve division is represented by *Sir Henry Havelock* (W. Paul), shown as new in 1866, a rich-looking plum purple flower, with a darker stripe running up the sepals.

The White division is represented by *Lord Shaftesbury* (W. Paul), which was first shown in 1864, and since that time has been considerably improved, though it is still somewhat coarse; the bells are very large and stout, and of a pale creamy white, but not of the best shape; awarded a first-class certificate.

Among Yellows, the most prominent is *Bird of Paradise* (W. Paul), not a new flower indeed, having been named and catalogued by a London house some five or six years ago, but only exhibited in 1866; the colour is pale canary yellow, the bells small and somewhat crumpled. *La Grande Jaune* (W. Cutbush & Son), is a valuable addition to this class; colour dark cream, with stripes of brownish yellow up the sepals; bells large, stout, and well reflexed, forming a good spike.

Of older flowers, but yet rare, because expensive, *La Grandesse*, *Snowball*, and *Mrs. James Cutbush*, are fine varieties among the Single White flowers with large bells. *Victor Emmanuel* promises to be an improvement on Duc de Malakoff; colour pale salmon, with a stripe of carmine along the segments; bells well reflexed; good spike; a novel and distinct flower. *Carmine* is of a bright deep carmine hue; pips close and smooth, and finely formed; spike short; colour very striking. *La Prophète*, deep pink, with white centre, is a rather old flower, but has been finely shown by Mr. Paul during the past season. *Lord Palmerston*, though a somewhat novel flower, is of a washy pale violet hue, which detracts from its effectiveness in a group, but when well bloomed, its white eye renders it distinct and striking. *Lord Cowley* is of a pale lilac blue colour, and does not possess so much colour on the exterior of the bells as *Blondin*, being there azure blue instead of violet; Lord Cowley and Blondin bear a striking resemblance the one to the other, but the latter has finer quality and more finish about the flower. Among the Yellows *Ida* has been very finely shown this season, and still ranks the premier flower in this division of colour. *King of the Blues* is a

magnificent flower in the Blue division, and is not surpassed by any other variety of a similar shade of colour.

Among Early Single Tulips I have observed nothing strictly new, but a few of a somewhat novel character and but seldom seen, deserve mention. Of these the Violet class was represented by *Queen of Violets*, rosy violet, a very fine and novel shade of colour; flowers large and bold, and of good form. *Rose Aplatie*, pale violet pink, feathered and flamed with carmine, very delicate colour, and good form; and *Berangaria*, purplish mauve, of a dark shade, very slightly feathered with white, distinct and novel, the flowers of good size, but the petals somewhat pointed. *Comte de Vergennes* is a novel and beautiful flower, pure white, with a blotch of rosy crimson on the centre of the petals, and feathered with the same. *Queen Victoria*, a white flower, pencilled and shaded with rosy carmine, has been very fine this season; unfortunately a spurious variety too often gets sent out for this. *Monument* is a tall-growing bright rosy cerise flower, which sometimes comes slightly flaked with white. It is a bold and showy kind. *Brutus* rectified, is a "broken" Brutus, having a golden base to the flower, and is feathered with gold also; it is a very fine and showy flower. *El Dorado* is a small but very bright yellow flower that will be sure to please. *Jan Lucken* has a ground colour of golden yellow, flaked with bright crimson; a medium-sized flower but very showy. *Ferdinand Boll* is of a pale rosy lilac shade, with lighter edges; a fine flower.

Quo.

COOL ORCHIDS—ODONTOGLOSSUMS.

Now that plants of the more showy and free-blooming Orchids can be had at prices even more moderate than those of some of the better varieties of Pelargoniums when first sent out, they are rapidly becoming popular. Their popularity may date its first prominent increase from the advent of cool treatment, and that for several reasons. The first may be said to be owing to the large lot that was sent home from the elevated regions of Central America by Weir and Blunt, among which, despite many losses, several batches reached this country in good condition. These filled the market with sorts which hitherto had been confined to a few growers, and prices fell to so reasonable a rate as to induce others to make a beginning. Secondly, experienced growers had found out the impracticability of growing many such things as Odontoglots for instance, from alpine regions, in a temperature where the very essence of the pseudobulbs was washed out of them, and sickness and death were the consequence, involving losses which might once or twice be borne by an enthusiastic lover of the race, but could not be expected to be long endured. Benefiting by both written and oral advice, they found to their delight and astonishment, that not only could the inflorescence of the plants under cultural care, equal the sketches and representations of collectors, pourtraying them from nature as wildings, but that in some instances they were vastly superior. Thirdly, orchidophilists were delighted to find that both they, and the ladies of their households, could inspect and admire the plants without feeling uncomfortably hot, and running the risk of catching periodical colds from being, so to speak, within the influence of a Turkish bath. An East Indian climate must always partake a little of this character; but for good and beautiful Orchids that are found in the Andes and Cordilleras of tropical regions, a very cool temperature will suffice.

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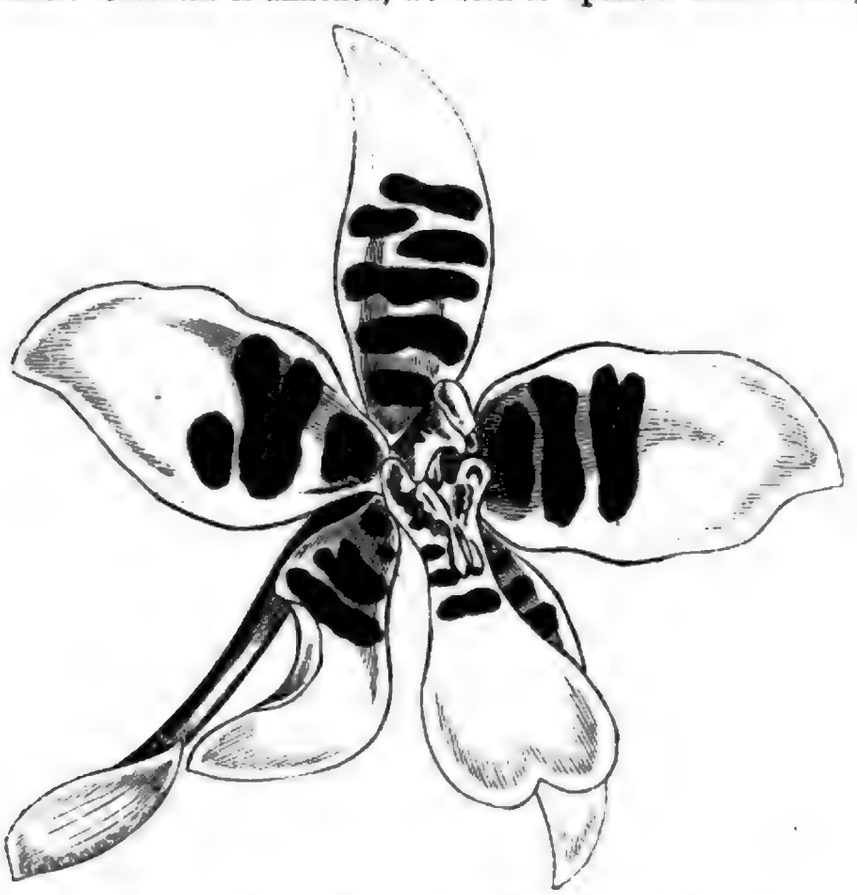
The Odontoglots are fast becoming a numerous family. Between the years 1837 and 1840, the earliest of them were introduced from Mexico, comprising *O. bictoniense*, *cordatum*, *Cervantesii*, and *Rossii*. Since then we have had the glorious *O. grande*, as well as the rare and beautiful *O. Pescatorei*, *nebulosum*, and others which seemed at first to baffle the efforts of cultivators. We are all, however, now getting fast over the difficulty, so that the *O. Alexandræ*, *luteo-purpureum* of Lindley (*radiatum* of Reichenbach), *gloriosum*, and *triumphans* of modern introduction, are likely to be dealt with, culturally speaking, as they ought to be. It has been shown several times that the wondrous beauty of Odontoglossums has far eclipsed the most sanguine anticipations, and that well-developed plants of *O. grande*, *Pescatorei*, and *nævium* are among the finest things in cultivation. This being the case, it has been made an object to present a pictorial representation of some of them before the readers of the FLORIST, in order to draw more general attention towards them, and to endeavour to coax the looker-on and admirer, to invest a few pounds in forming a collection.

Of *O. Schlieperianum*, a figure of which from the pages of our contemporary the *Gardeners' Chronicle* is annexed, we wish to speak a word or two, not so



much concerning its own merits as in reference to the species from which it originated. It might be considered horticulturally an outcast from the very superb *O. Insleayi*. Reichenbach himself in naming it has some doubts about its distinctive character, but is inclined to stand sponsor for it on the plea of its flowering "in late summer;" whereas, Insleayi flowers in early spring. That is not a sufficient distinction in my estimation, more especially as even Insleayi has been flowered in autumn. The same sort of indefinite distinction occurs in the case of what is called a summer-

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flowering O. grande, which is thus elevated into a distinct species, as *O. Lawrenceanum.* These and some other instances I could name, have a tendency to obscure botanical nomenclature; and I would support the late Dr. Lindley and Mr. Bateman in strongly deprecating this Babel of confusion. I have flowered the common O. grande when in vigour over and over again twice a-year, and so have I done with the so-called O. Lawrenceanum. Botanists are sometimes more to blame than the horticulturists for this state of matters, and when men of science will persevere in so doing, how are we to look for a remedy? To revert to O. *Insleayi* and its variety *Schlieperianum*, we have to remark that there are now numerous plants in the country, and plenty to be bought at a cheap rate. As a cool-house plant it always engages attention, and when any one gets from ten to twelve flowers on the spike, its decorative importance will be suitably acknowledged. Its flowers are only about half the size of grande, but the colours are better contrasted and more vivid.

O. radiatum is a decided acquisition. Although, as noted above, it is identical with *O. luteo-purpureum*, still that species was till lately unknown as a cultivated plant in this country. There is this peculiarity about the species, that it occurs in so many and such diverse varieties, that were we contented with such little distinctions as those of the so-called species above commented upon, we might have at least a dozen new names added to our Orchid vocabulary. It comes to be a question, then, with collectors, not so much Have you got radiatum? as What is your variety? Some of them are very clear in the ground colour, and some are very indistinct; some prominently blotched and spotted with a clear shining chocolate, while others are of a dark murky brown. Good-grown plants produce panicles bearing from fifteen to twenty-four flowers. Coming from Ecuador and those lofty ranges that stretch across Central America, it is well suited for a cool climate, and it is of ready growth and free-blooming properties.

On the merits of *O. grande* and *Pescatorei* with its nearly allied species, *Alexandra* (Bluntii), I need not enlarge. They, beyond question, combine the gorgeous, the beautiful, the chaste, and the winning features of the highest rank of floral display, and any reasonable sum invested in either one or all of them, if the plants be well managed throughout, will be repaid with interest at the period of inflorescence.

Meadow Bank. JAMES ANDERSON.

CABBAGES FOR SPRING USE.

Practical men have no difficulty in getting a supply of Cabbages for early spring use; to them it is a very easy simple affair, no matter what the season may be. But the inexperienced oftentimes make great mistakes in the matter, and instead of having Cabbages for use in early spring, it very frequently happens that they have none ready before midsummer. A supply of Cabbages early in spring is always very useful, but doubly so in seasons like the past, when greens of every kind were scarce in consequence of the wholesale destruction among them by the frosts in January last. A few remarks on the subject may be not altogether unacceptable to some of your readers. There are two points of much importance to be attended to—namely, 1st, The Time for Sowing the Seed; and 2nd, The Time for Transplanting.

The Time for Sowing the Seed.—This is a matter of much importance, as the time that would be proper to sow in one place, will not answer in another part of the country. In the south of England, the end of July or beginning of August is found to be a proper time for sowing; but here in Yorkshire, if we were to defer the sowing until then, we should in vain look for Cabbages before midsummer. Taking the average of seasons, I find it is not prudent to sow later than the middle of July, in order to get Cabbages early in spring. As the seasons vary much, so also does the growth of the plants, which will be either large or small according to the weather. Instead, therefore, of depending for plants on one sowing, I have made it a rule for many years to make two sowings, the first about from the 8th to the 12th of July, and the second from the 20th to the 26th. By this plan I have always a great choice of plants, and plenty to spare for the workmen.

The Time for Transplanting.—Here in Yorkshire this should not be done later than the middle of September. I plant always the end of the first week in September, from the first sowing in July, and again about the end of the third week I plant the best plants from the second or late sowings. In general, I find those planted the end of the first week in September come in earliest in spring—sometimes, but rarely, they do get a little too forward in the autumn, and in consequence suffer a little if severe frost sets in, but in general I find they do better and come in earlier than the later-planted ones; the latter come in after the others, and continue the supply. In general, Cabbages should never be planted out later than the middle of September when wanted early in spring. If they are planted in October they are rarely fit for use before the following June. When planted early in September they get good roothold, and being earthed up and taken a little care of, they stand ordinary winters with impunity; but when planted as late as October they do not get much roothold; and if the weather sets in cold and unfavourable they make no progress, and many of the plants fall a prey to slugs, so that when March comes round, more than half the plants are gone, the vacancies have to be filled up, and it is generally the end of June before the Cabbages are fit for use.

General Remarks.—For early use some approved early sort should be sown. The properties of a good Cabbage are, a small short stem, and a large, compact, well-formed head of succulent leaves, surrounded with but few loose leaves. To grow them in perfection a deep rich soil is requisite.

As the young plants advance in growth, the soil between the rows should be stirred frequently with the hoe, and a little earth drawn up to the plants as they require it. Should the earth in April be dry, frequent heavy water-

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ing will be very beneficial to them, and occasionally a watering of liquid manure. Attention to the foregoing matters will ensure a supply of good Cabbage for spring use.

Stourton. M. Saul.

THE TWO ROSE SHOWS.

I think it was Thackeray who remarked that actors when not playing always went to the play, and, whether exhibiting or not, I never miss seeing the two Rose Shows. The 29th day of June found me at the Crystal Palace, and a more auspicious day for exhibitors and visitors could hardly have been desired, although it was, perhaps, rather hot for the Roses, which in many cases showed signs of fatigue long before the close of the Exhibition. The Show was undoubtedly a success. Yet I fancy that I have seen more competitors in some of the classes, and a greater number of fine Roses, the diminution in the number of the latter being attributable, probably, to the severe winter and spring we have just passed through. It may be said that this influence was *local*: and local I believe it was in the *intensity* of its effects, but it was, if I mistake not, *general* in so far as the effect produced on the quality of the flowers. I have said, and say again, that the Crystal Palace is not a place in which to show plants and flowers to advantage, nor one in which to keep them in the highest state of freshness throughout a long summer's day. There is too much light, too much heat, and the magnificent surroundings lessen rather than add to the importance and effect of the Exhibition. Why does not the Company erect in its beautiful gardens canvas tents, the best of all contrivances for displaying plants and flowers to advantage? Let us hope to see this done at no distant future; and if the tents could be connected with their own Rose garden—the interior of the temple filled with pot Roses and pyramidal bouquets of cut Roses in vases—the Crystal Palace Company might safely count on making this not only the best Rose show, but one of the most interesting floral fêtes of the year.

As the clock struck twelve I took up my position at the entrance, note-book in hand, and, sore trial of patience though it was, stuck to the ropes for four long hours, by which time I had brought the last flowers under view. Willingly would I have moved faster, but to go with the stream and see, or diverge and not see, were the only alternatives. I preferred the former course, and having fairly carried it out will now give my readers the benefit, if benefit it be, of the following extracts from my note-book, relating, of course, to new or little-known Roses only:—

Madame Josephine Guyet, crimson, much in the way of Senateur Vaisse, large, full, and of tolerable form; apparently good, but not indispensable.

Xavier Olibo, blackish crimson, shaded with amaranth; pleasing in colour when it does not burn, but irregular in shape; pretty, but much over-praised.

Marie Baumann, bright carmine, the flowers large, smooth, and nicely formed, something in the way of Beauty of Waltham.

Madame Fillion, beautiful fresh pink colour, very lovely, outline good; the flower not of any great depth.

Abel Grand, rosy blush, colour fresh and pleasing; a very nice Rose, something in the way of Duchess of Sutherland.

Marguérite de St. Amande, rosy flesh-colour, large and full, having the free habit of Jules Margottin.

Leopold Hausburg, carmine shaded with purple, large, good outline, slightly coarse, and scarcely double enough.

Charles Rouillard, rosy lilac, with red centre, large, full, and of perfect form, the colour at the circumference of the flowers sometimes a little dull.

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Alpaïde de Rotalier, transparent rose, large, full, and of good form; fine.
Madame Eugène Appert, salmon rose, large, full, and finely formed; colour fresh, pleasing, and distinct.
Mdlle. Therese Levet, rose pink, large, full, distinct, and of globular form; very desirable for the combination of form and colour.
Alfred Colomb, bright red, large, full, globular, smooth; quite first-rate.
Monsieur Woolfield, rosy pink; a very large but somewhat coarse, globular flower.
François Treyve, crimson scarlet; good, but scarcely first-rate as shown.
Duke of Edinburgh, a dark flower, something in the way of Prince Camille de Rohan.
Comtesse de Palikao, pretty rose colour, apparently growing paler soon after expansion.
Madame Bellenden Ker, white, something in the way of Mdlle. Bonnaire; desirable as a white Rose.
Ville de Lyon, a large, finely-shaped Rose, of a melancholy colour.
Chevalier Nigra, pretty pink, not over-double.
Triomphe de Soissons, flesh-colour, distinct, and pretty, but scarcely first-rate.
Mdlle. Annie Wood, clear red; large, full, and of good form.
Mdlle. Jeanne Marix, dark slate; very large.
Souvenir d'Abraham Lincoln, dark crimson and purple; not over-large.
Felix Genero, a nice globular flower, of a dull lilac colour.
Miss Ingram, flesh-coloured white; somewhat globular in form.

The Show at Kensington on the 2nd of July, was in some sort a repetition of that held at the Crystal Palace three days before. The flowers, if less numerous, were fresher at the outset, and remained so till the close of the Exhibition, the sky being cloudy, and the day comparatively cool. We say of the Rose Show at Kensington as of that at Sydenham—the Roses should be shown under canvas to secure the twofold advantage of a more favourable light, and a cooler atmosphere. In addition to the kinds already commented on, we saw in fine condition here:—

Madame James Odier, clear pink, something in the way of Coupe d'Hébé; colour and shape good.
Madame Hoste, delicate pink, distinct in colour, perfect in outline, not always very double, and apparently not of strong constitution.
Semiramis, clear pink, edges blush; large, full, and of fine globular form.
Fisher Holmes, reddish scarlet shaded with crimson; very brilliant, large, and moderately full.
Prince de Portia, vermilion, colour striking and beautiful; large, full, and finely formed.
Exposition de Brie, brilliant red, large and full; a very fine, but somewhat coarse flower.
Charlotte Corday, red shaded with purple; large, but hardly first-rate.
Comtesse de Paris, rose colour, large and full, fine smooth petals, good outline, not very double.
Josephine Beauharnais, pink edged with silver; very large, full, and of fine form.

In addition to the above, I noted the following simply as good:—Achille Gonod, George Prince, Duchesse de Morny, Princess of Wales, Madame Emain, and La Esmeralda.

The pot Roses were, as is usual at this season of the year, of indifferent quality at both Shows, and not worthy of comparison with the plants shown at an earlier date. Some of them were, in fact, calculated to throw discredit on the names they bore. Yet pot Roses must not be omitted from our future Rose Shows; they form a distinctive feature, and it is interesting to see the whole plant before one, as so much more may be learned from it than from mere cut flowers. The growers must, however, bestir themselves, and bring them in better condition.

On comparing these Exhibitions with those of former years, it is both important and interesting to note how many of the old Roses are falling aside before the increased size, improved form, and other desirable qualities of recent introduction. Although some of the old kinds, as Caroline de Sansal, Charles Lefebvre, Comtesse de Chabrillant, Beauty of Waltham, La Ville de St. Denis, Madame Knorr, Lord Macaulay, Madame Vidot,

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Mdlle. Bonnaire, Pierre Notting, &c., still hold their own against all new comers, and probably will do so for at least a generation, how many of our old favourites present were eclipsed by later acquisitions, and how many had totally disappeared! And while it cannot be gainsaid that there are second and third-rate new Roses as well as second and third-rate old Roses, it is still undeniable that the pick of the novelties evince a progress which is real, solid, and satisfactory. In Abbé Berleze we have an improved Géant des Batailles; in Madame Victor Verdier an improved Général Jacqueminot; in Lady Suffield an improved Duchess of Norfolk; and there are other improvements too numerous to mention. We have, also, in Alfred Colomb, Antoine Ducher, Charles Verdier, Comtesse de Jaucourt, Horace Vernet, Jules Calot, Black Prince, Madame Pulliat, Madelaine Nonin, Monsieur Noman, Paul Verdier, Thorin, and others, new colours and styles which only require to be seen to be coveted. It is true that some of the last-named did not appear at the exhibitions, or appeared only in doubtful condition, but I have seen them, both at home, and in the grounds of the raisers, in a state of beauty that justifies unqualified commendation.

Paul's Nurseries, Waltham Cross, N. WILLIAM PAUL.

NOVELTIES, &c., AT FLOWER SHOWS.

AT the Meeting of the Floral Committee at South Kensington on June 18th, some good things were shown. Messrs. Downie, Laird, & Laing have been singularly fortunate in raising fine varieties of *Nosegay Pelargoniums*. On this occasion they received a second-class certificate for *Hon. Gathorne Hardy*, having large and well-shaped trusses of bright orange scarlet flowers, free-blooming, and of excellent habit. They had also *Floribundum*, pale orange scarlet of a clear shade; and *Comet*, bright cherry crimson, flowers stout and smooth, and good habit; both of these promise to make good bedders. Mr. John Mann, of Brentwood, had the following *Zonal Pelargoniums:—Guardsman*, glowing orange scarlet; *Startler*, clear bright orange scarlet; and *The Baron*, a fine shade of orange crimson. These are good in their way, but as shown could not claim first-class qualities.

Mr. Whitehorn showed some plants of one seedling *Pelargonium*, and cut flowers of another, raised from Rollisson's Unique, and both were great improvements in point of colour on the parent plant. The one represented by the plants was named *Purple King*, which Mr. Whitehorn intends to change to *Crimson King*, as the hue of colour is a deep rosy crimson. The variety represented by the cut flowers was named *Constellation*, and will, I think, prove the best; the flowers were larger, the colour more vivid, and suffused with violet. Mr. Kimberley's spotted *Pelargonium Grand Arab* (noticed at page 169), is a showy, free-blooming kind, and will be very useful for decorative purposes.

Bedding Lobelias are getting nicely improved just now. Dwarf habit has been sadly wanted, yet something better than the attenuated white-flowering Miss Murphy, that appears as if it had hardly constitution enough to grow, much less flower. Mr. W. Lee's *Dwarf Blue*, awarded a first-class certificate at this meeting, has a very dwarf yet robust constitution, and the flowers are bright blue with a white centre; it blooms freely, and will make a most acceptable bedder. Some varieties of L. Paxtoniana or L. marmorata were also produced—viz., *Ultramarine*, dark blue with white centre; *Fawn*, a variety with pale lilac flowers, but with a loose

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habit; and *Sparkler* (J. & C. Lee), deep blue with white centre, very showy, the habit straggling. There was also a sickly-looking variety, said to have variegated foliage, and which was named *Queen of Lobelias.*

The Royal Botanic Society held their second great Show on the 19th of June, and plenty of new things were staged. Of large-flowered *Pelargoniums*, first-class certificates were awarded to *Hermit* (Foster), *Sœur de Charité* (Foster), and to *Empress* (Foster). Second-class certificates were awarded to *Joan of Arc* (Foster), and *Prince Consort* (Foster). These are noticed in detail in another page (167), as well as other varieties shown on this occasion.

Messrs. Downie, Laird, & Laing's *Nosegay Pelargonium Gathorne Hardy* got a first-class certificate here; and *Floribundum* and *Comet* got certificates of merit, which, I presume, is equal (here at least), to a certificate of the second class. A first-class certificate was awarded to Mr. George Smith, Tollington Nursery, Islington, for a very fine *Nosegay Pelargonium* named *Grand Duke*, the colour a rich and telling hue of orange scarlet, trusses large and bold and very showy, and the habit good. Mr. Smith also had *First Favourite*, another excellent Nosegay of an orange scarlet shade, and a basket of *La Grande*, a fine Nosegay variety, sent out by Mr. Smith last year. These Nosegay varieties really look charmingly effective when grouped in baskets in this way.

Messrs. Carter & Co.'s method of arranging their groups of Variegated Zonal, Gold and Bronze-zoned, and Variegated Pelargoniums cannot be too highly extolled; and the same remark applies to Messrs. E. G. Henderson & Son's method of arranging groups of bedding and other plants at these Shows in a very tasteful manner. On this occasion the Judges commended in Messrs. Carter & Co.'s group, two yearling *Variegated Zonal Pelargoniums*, *Prince of Wales* and *Princess of Wales*, both very promising; *Aurora*, *Marian*, and *Royal Standard* are also yearling plants of great promise; and the same can be said of *Egyptian Queen* and *Black Prince* among the Gold and Bronze-zoned section. A first-class certificate was awarded to Mr. Turner, of Slough, for a new Hybrid Perpetual *Rose*, raised at the Royal Gardens, Frogmore, named *Miss Ingram*. The colour is a delicate pink; it is a finely cupped flower, very constant and free-blooming, as well as of a vigorous habit, and quite hardy.

Some *Sweet Williams*, shown by Messrs. Bragg, of Slough, and Shenton, of Biggleswade, mark a steady improvement in this old-fashioned flower. The trusses of blooms were very fine, and the individual pips large, circular stout, and finely marked, some having smooth, and some serrated edges, some being Auricula-eyed, and others not so. *Pinks* were finely shown by Mr. Turner, a stand of twenty-four cut blooms being a centre of attraction. Mr. Bragg had *Rosabel*, *Improvement*, *Rosabanna*, and *Disraeli*, seedling varieties, but justice had not been done to their cultivation, and whatever qualities the flowers might possess, they were not shown in a way to develope them. *Pansies*, both English and Fancy, were well shown by Messrs. Downie, Laird, & Laing. R. D.

POINSETTIAS.

Permit me by way of addenda to an able paper at page 158 of the Florist, to make a few remarks upon the culture of Poinsettias so as to form dwarfer plants than can be secured by the general way of procedure to attain them—namely, from 4 to 8 inches in height—and occasionally with double or triple crowns of their bright whorls of bracts. About this

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time, the first week in August, choose from amongst the young growths of the current season, formed upon old-established plants, any having strong, well-matured wood; cut them off at least three joints from the top, though the exact point should be determined upon according to the consistency or hardness of the wood generally. Make a clean cut, not too close to the lower joint, remove the lower pair of leaves only, and dry the wounds a little by placing them for a few minutes in dry silver sand. Having prepared small 60-sized pots by filling them with a compost formed of one part each of peat and leaf mould to two of silver sand, form a hole in the centre, place a pinch of silver sand therein, and into this the cutting, pressing the soil firmly round it, and well watering it in.

The pot should then be plunged in a nice bottom heat of 70°, in a close, warm, well-shaded frame or pit for about ten days, or, indeed, until rooted. This they readily show by raising their heads and commencing to grow, when they require gradually inuring to the light and air. This done, shift them into a general admixture of peat, leaf mould, and sand, using 48-sized pots; place them close to the glass in an open airy situation, syringe frequently, and do not allow them to suffer for want of root-moisture.

When divisional heads are needed, it is better to pinch a few back as soon as they have once begun growing, keeping them rather dry for a time until they have formed fresh breaks, when every encouragement should be given. To operate thus successfully, however, needs some amount of skill; hence, excepting under favourable conditions, I do not advise the operator to follow too extensively the suggestions here thrown out.

Digswell. W. Earley.

OUR MONTHLY CHRONICLE.

The Royal Horticultural Society's Show at Bury.—The *debût* of the Royal Horticultural Society in the provinces has been, we are happy to chronicle, a decided success. The show itself was a great show, the merit of the exhibitions made it a good show, and the returns which flowed into the exchequer rendered it a paying and profitable show, which latter, considering the unfavourable unsettled state of the weather, and the circumstance of its being a first experiment, is most encouraging. The exhibition was held in the Vine fields belonging to the old Abbey, which is of historic interest. It was displayed under several tents, the first of which was Mr. Unite's great circular tent, 90 feet in diameter, forming the reception-room, so to speak, leading to the suite of tents beyond, which extended to more than 200 yards in length. In this circular tent were a central stage, a broad pathway, and an exterior belt of plants set on the ground. Here were mostly arranged the large collections of stove and foliage plants, the hothouse Ferns, Palms, Arads, and such like subjects, contributed not only from the gardens of the vicinity, but many of them brought from Manchester and London. Leading out of this, was a tent of some 300 feet in length, devoted to cut flowers, fruits, bouquets, and special prize subjects, requiring table space for their display. Parallel to this ran another tent, nearly 200 feet long, which was almost entirely filled with Pelargoniums, separated by a central line of Fuchsias. These were most effectively displayed *on the ground* —a mode of setting up all the larger kinds of exhibition plants which has many points of recommendation, inasmuch as the surface of the plant is seen instead of the side or the unsightly lower portion, which are brought directly into the line of vision when such plants are set up on elevated stages. Another tent of considerable size was devoted to implements; others to a variety of subjects forming the smaller classes of the schedule; while of cottagers' produce there was also a good display.

Of all this vast amount of horticultural produce there was scarcely anything to be observed below the average in point of merit, and very many even of the local productions were far above the average. Fuchsias and Pelargoniums are amongst the local productions which evinced this high degree of excellence; while of novel features, also well developed by local exhibitors, may be mentioned the fine display of Bedding plants, a collection of which from Culford Hall, set up in neat, square, green-painted, wooden boxes, showed great merit in treatment and great taste in arrangement, and may be instanced as especially noteworthy in this new and interesting class.

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The principal prize, the Royal Horticultural Society's 25-guinea cup for 20 stove and greenhouse plants, was awarded to Messrs. Lee, of Hammersmith, who competed for it with Mr. Baines, gardener to H. L. Micholls, Esq., Bowdon, near Manchester. In this latter collection were two such plants of Sarracenia as were probably never before seen—one, S. purpurea, a dense mass 3 feet over, and with enormous pitchers; and the other, S. flava, fully a yard high, with the mouth of the pitchers 3½ inches across, and the broad leafy lid 4½ inches. Mr. Baines also showed a beautiful group of Sarracenias in addition to those in his large collection. It consisted of S. Drummondii alba, nearly 5 feet high, with the lid of the pitcher mottled with white and wavy at the margin; two plants of S. flava, 4 feet high, with the lid ovate and plane; S. rubra, 1 foot high, with a red-veined, ovate plane lid; S. variolaris, with the upper part of the tube mottled with white, and the head recurved like a parrot's bill; and S. purpurea, very highly coloured. They formed a group such as is rarely seen at exhibitions. Orchids formed the weak point of the show, very few being staged. The £20 and £7 7*s.* cups offered by the ladies of Bury were not even competed for. Ferns formed a considerable feature, but consisting rather of creditably grown plants than of rare species. Some effective groups of Palms and of Dracænas were also set up. Fuchsias, together with Pelargoniums of all kinds, were abundant and good. The Bury silver cup for Fuchsias and the special Pelargonium prize were won by Mr. D. T. Fish.

Among Variegated Pelargoniums Messrs. Saltmarsh & Sons, Chelmsford, were most successful with some very pretty and compact plants—viz., Argus, Mrs. Pollock, Countess, Sunset, Culford Beauty, and Variegated Quadricolor. The prize for six new Variegated Pelargoniums was also won by Messrs. Saltmarsh & Son with Lady Cullum, Bird of Paradise, Sunrise, Meteor, Snowstorm, and Crown Jewel. Mr. Grieve was the winner of the County cup for 12 seedling variegated Pelargoniums of 1866-67. He staged two collections, mostly yearlings, some of which were only just breaking into character. . The sorts in the winning collection were Fanny Newham, Bride of Dandelot, Victor Galbraith, Lizzie Paget, Black Adder, Hiawatha, Isabella Clay (very fine), Clemmy, Eva Fish (distinct), Rothley, Allanton, and Victoria Regina.

One of the most novel features (alluded to above), was presented by a class of Bedding plants, for which the Suffolk gardeners' cup was offered. It was taken by Mr. Grieve, who showed 48 boxes of well-grown plants, each kind occupying a small, square box, of about a foot square. Another good feature was presented in the class for cut flowers of 24 Hardy Herbaceous plants, which when shown in good-sized neat bunches are showy and effective. Mr. Gilbert, St. Margaret's Nursery, Ipswich, was placed first. In the various groups were handsome forms of Alströmeria, Lilium testaceum, Asclepias syriaca, the double-flowered white Campanula persicifolia, Coronilla iberica and varia, and the rarely seen Brodiæa congesta—all fine old things, not half enough grown. Mr. Brown had a group of the old-fashioned Gladioli, which was much admired. An interesting group of New Plants was shown by Messrs. Veitch & Sons, of Chelsea, consisting of Sanchezia nobilis variegata, Croton irregulare, interruptum, and maximum, Anthurium Scherzerianum, a splendid plant of Todea (Leptopteris) superba, Acalypha tricolor, Verschaffeltia splendida, Echites rubro-venosa, Abutilon Thompsoni, Maranta Veitchii, Nierembergia rivularis, and Coleus Veitchii. Another group from the same firm included the new hybrid Alocasia intermedia, Retinospora filifera, the fern-like R. plumosa; Begonia Veitchii, Vanda Bensoni, Adiantum concinnum latum, Alocasia Jenningsii, the Indian species with dark segments on green ground; Dracæna Moorei, and D. regina. These having already received the first-class certificates of the Floral Committee, were now collectively awarded a special certificate. Mr. Standish, of Ascot, exhibited Retinospora filifera, and Mr. Bull, of Chelsea, Dalechampia Roezliana rosea. Messrs. J. & C. Lee had a fine specimen of Ouvirandra fenestralis.

Fruit was good and tolerably abundant. The most remarkable was a sample of three bunches of Black Hamburgh, which took the Stowmarket medal, shown by Mr. Meads, gardener to Raikes Currie, Esq., Minley Manor, Farnborough, Hants. These were large, irregular bunches of fine berries, pretty well coloured, and weighed together 26½ lbs. The cup offered by the *Gardeners' Chronicle* for a collection of fruit and vegetables was won by Mr. Pottle, gardener at Bealing's Grove, Woodbridge; and the special prizes given by the *Journal of Horticulture* were respectively won by Mr. Carmichael, gardener at Sandringham, and by Mr. Blair, gardener at Shrubland Park.

The show of implements was not extensive, but some very good articles were produced in several of the classes, especially among garden seats, engines, suction pumps, lawn mowers, and models of greenhouses. Among garden seats Messrs. J. B. Brown & Co., of London, had some iron-framed chairs, remarkable for their excellence of design both as to the model or general outline, and as to the ornamental details; the seats were somewhat hollowed, and consisted of wooden bars. One especially, of the Nasturtium pattern, which was certificated, was of great beauty and excellence, and was subsequently purchased for Sandringham. The most important conservatory models were those shown by Messrs. Sanders Frewer & Co., of Bury St. Edmunds,

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the proprietors of Beard's patent system of glazing. Some of those of the lean-to form were particularly well contrived, and there are points about them deserving of the highest praise. In particular, the mode of glazing, which has been fully explained in our pages, and is done with the greatest facility; and the mechanical arrangements provided for the working of the ventilators, which secures perfect steadiness and the greatest ease of movement. Both these features were fully recognised by the Jurors in the award of first-class certificates, specially for these points.

Testimonials.—The retirement of Mr. Robert Thompson from active duty in the service of the Royal Horticultural Society has been thought by his friends to offer a fitting occasion on which to present him with a substantial Testimonial, expressive of their sympathy with him in his declining years, and indicating also their high appreciation of the many services which he has rendered to Pomology and Meteorology during a long and active life. The Council of the Royal Horticultural Society, acting as the exponents of public feeling, have taken the initiative in the movement, by appointing a Committee to carry out the proposed object. A subscription list has in consequence been opened, and subscriptions may be transmitted to the Secretaries, Dr. Hogg, 99, St. George's Road, Pimlico, S.W.; and Mr. Thos. Moore, Botanic Garden, Chelsea, S.W.; or to Mr. James Richards, Assistant Secretary of the Royal Horticultural Society, South Kensington, W. We heartily join in the following remark:—"To no man is the gardening public so much indebted as to Mr. Robert Thompson. Quiet, unassuming; yet profoundly learned in those two branches of science, Pomology and Meteorology, which he made his special study, he has been one of those under-currents of scientific progress whose force has been felt and acknowledged, without the author being known. We hope the appeal will meet with the hearty response it so eminently deserves."——It is also proposed to present a testimonial to Mr. Bruce Findlay, of the Manchester Botanic Garden, in acknowledgment of the great pains taken by him in perfecting the arrangements which secured the success of the recent National Horticultural Exhibition. Subscriptions may be sent to the Secretary of the Botanic and Horticultural Society of that city.——In Glasgow, a handsome tea and coffee service has just been presented to Mr. William Austin, of the firm of Austin and McAslan, by his numerous friends, as a testimony of the esteem in which he is held. ——Of the nature of a Testimonial too, is the acknowledgment of the services of Mr. D. T. Fish, in connection with the Bury Show, by the Royal Horticultural Society, conveyed in the following resolution adopted at a special field meeting of the Council during the Show at Bury:—"Resolved—That the thanks of the Council of the Royal Horticultural Society be conveyed to Mr. D. T. Fish, for his great services in connection with the Royal Horticultural Society's Show at Bury St. Edmunds; and that he be made a Forty-guinea Life Fellow of the Society, as a small mark of their appreciation of his services in bringing the Exhibition to a successful issue." This acknowledgment does honour alike to Mr. Fish, and to the representatives of the Royal Horticultural Society.

Monstera deliciosa.—The fruit of this plant has been suggested as a choice occasional addition to the dessert, but the presence in the pulp of minute prickly crystals or raphides has been held to detract very much from its merits as an edible fruit. If, however, the fruit is thoroughly ripened on the plant the delicious juice may be sucked from the pulp with little, if any, of the unpleasant pricking sensation caused by eating the substance of the fruit itself in the earlier stages of ripeness; and the flavour is much richer when the fruit is thus thoroughly matured. The supply of an occasional fruit of Monstera is no chimera. "We have ourselves," writes the editor of the *Gardeners' Chronicle*, "from a plant only some three or four years old, and confined in a half-bushel pot, gathered half a dozen fruits during the present season, and the same plant has now five other spadices just passing through the flowering stage." To secure this thorough ripening on the plant, it is necessary to support the fruits with a tie to the adjoining leafstalk, their weight being sufficient, if they are not thus supported, to break them over at a much earlier stage, just at the top of the stalk. They take about a year more or less to swell and ripen.

Libocedrus tetragona.—M. Briot states in *Revue Horticole*, that this plant when grafted on Saxegothæa not only succeeds in spite of the somewhat distant affinity, but its habit becomes changed in consequence. Instead of forming a narrow cylindrical column it spreads widely, so as to form with its numerous and short branches an irregularly spherical or somewhat depressed mass, similar to Juniperus Oxycedrus echiniformis.

Large Vine.—Mr. J. A. Watson mentions in the *Gardeners' Chronicle*, a large Vine growing on Mount Salevi in Switzerland, which has been found to increase in size of stem at the rate of 1 inch annually. In March, 1867, the circumference of the stem, at 4 feet from the ground, was 114 centimetres, or 3 feet 10 inches English. The branches have covered and monopolised several large trees, and have had no pruning nor care of any kind for years; still the produce last year was four hundred bottles of first-class red wine: this at 1*s.* a-bottle is £20 sterling, and calculating the number of square yards covered by the Vine, is at the rate of over £300 sterling per acre.

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CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Owing chiefly to the natural heat of the season, stove plants will now be growing freely; but the temperature should be maintained so as to allow of plenty of air being given, in order to ripen the growth; at the same time a little air should be admitted at night. The plants likewise must be inured to more light by reducing the shading. Thus the summer growth will be rendered almost as perfect as in the native climate of the plants. Plants intended to flower late in autumn should be repotted, and their growth kept in check to induce early bloom; and with this view they may judiciously be fully exposed. Many plants will now be in flower, and to preserve their beauty should have shade and plenty of air; if, however, they could be removed to a house by themselves, others not in flower would have the advantage of more room, and young plants could be kept in a moist growing temperature. *Orchids* that have nearly completed their growth should have the moisture and shading gradually reduced, so as to prepare them to go to rest, not, however, by cold, for this is a condition almost foreign to their latitude; they may have a temperature of 75° at night, and 80° to 90° by sun heat, closing early in the afternoon.

GREENHOUSE.

Camellias will be mostly out of doors, and *Azaleas* which have formed their flower-buds may be set out in a sunny exposure, but the pots should be protected from strong sun—a remark which applies to all plants in pots. The tender fibres creeping close by the sides of the pots are very differently situated from those not in pots, in regard to the heat of the sun's rays. In the former case the rootlets are liable to come in immediate contact with a hard substance intensely heated, and consequently very dry, opposite where the sun's rays directly strike the outside of the pot; but when in the free soil, more than the thickness of the side of the pot, is interposed between the spongioles and the sun's rays, and consequently the force of latter is proportionally weakened, whilst moisture will be raised by capillary action from below, even from the subsoil. *Cinerarias.*—Pot off cuttings, as soon as struck, into small pots, and put in more for succession; repot as soon as the roots have reached the sides of the pot; seedlings should be similarly attended to. *Pelargoniums.*—Cut down for young stock, or it will be too late. When those plants that were first cut down have sufficiently rooted afresh, take them out of the pots, shake off the soil, shorten straggling roots, and repot; they will have time to make considerable growth this autumn. Pot off young plants when fit. Sow seed as it ripens, shading slightly from bright sun. Forcing sorts require lighter soil than the others. Mildew is especially to be guarded against; apply sulphur for prevention, lest it should appear, prevention being better than cure.

CONSERVATORY.

Shift any plants that require more room, so that they may be re-established before winter. *Camellias* may be shifted as soon as their flower-buds are sufficiently formed. Bring forward a supply of *Fuchsias, Gladioli, Liliums, Balsams, Scarlet Pelargoniums, &c.*, for the show-house. Regulate the shoots of creepers and other plants where the growths are too strong; but reduce their vigour in a way that will not render them unsightly, nor injuriously affect their health and soundness of constitution. In some cases the sudden removal of a gross shoot may cause an excessive derangement of the flow of sap, the force of which should previously be gradually diminished, so that amputations may be safely effected. It should be recollected that the stoppage of one main stream will overgorge many small channels. Therefore, in all cases, before cutting out a strong-growing shoot, its power of attracting sap should be diminished; this power resides in the leaves—reduce them, and there will then be no unmanageable torrent of sap to control.

FORCING.

Vines.—In late vineries the Grapes should be finally thinned. Whilst the Grapes are swelling syringe freely, and give at all times plenty of air, even at night; but it should be recollected that when the external air is cold, a comparatively small opening equals in effect a large one when the air outside is hot. If a full well-coloured crop of Grapes is the aim, keep the foliage clean and healthy, and reduce it with the most sparing hand. "Go to the ant, and consider her ways," was the advice given by a wise man nearly three thousand years ago; at the present day we may derive wisdom from the doings of another insect—viz., the Gooseberry caterpillar. The leaves of the bushes are stripped by it to the midrib, and mark the consequence—the berries swell a little, but they do not colour, and remain sour as verjuice. Knowing this to be the result of privation of foliage in the case of the Gooseberry, should it not strike us that the Vine, deprived of its foliage by any means, would be in the same condition, and that similar bad results would follow? Experience proves that, as in the case of the leafless Gooseberry, the leafless Grapes remain colourless and sour, and if they sometimes shrivel like a raisin, still they taste like verjuice—a fit dessert for those who are too obtuse to take a lesson from the case of the Gooseberry, or who do not thence learn to respect foliage.

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Pine Apples.—Give air freely, and maintain a steady temperature of about 85°; complete shifting generally before the middle of the month; keep close and more shaded than usual till fresh roots are formed. *Peaches and Nectarines.*—When the fruit is gathered water the border moderately if dry.

KITCHEN GARDEN.

The ground should be kept clear of weeds, so as to prevent their seeding, for if this takes place and the seeds are dug in, some will vegetate immediately, others will lie dormant for a time, but will sooner or later make their appearance, favoured by the heat of the soil, and with moisture when this falls in sufficient abundance. When the seeds of weeds have vegetated and are in their seed-leaves, take the opportunity of a dry day to give the surface of the ground a shallow hoeing and light raking, and the crop of weeds will disappear. Couch grass and Bishop-weed, held in mortal enmity by gardeners, will succumb if not permitted to show a green leaf during their season of growth. *Artichoke* stalks should be cut down as the crop is gathered. Plant out the late crops of *Broccoli*. Earth up early crops of *Celery*, but keep the hearts quite clear. Bank and earth up the earliest crop of *Cardoons*. Take up *Garlic* and *Shallots* when the leaves begin to wither, and string by the withered leaves on a dry straw rope. Sow *Onions* about the middle of the month for standing the winter, and for drawing young; also *Turnips* to stand the winter. Sow *Cauliflowers* between the 18th and 25th (a little earlier or later according as the situation is more or less warm), and *Cabbages* (Early Vanack or Fulham) in the first week, if not done at the end of last month. Sow *Lettuces* towards the end of the month for winter and spring use, the Brown Cos, Green Paris Cos, and Hardy Hammersmith are the preferable sorts. Sow Early Horn *Carrot* in the beginning of the month, in a warm situation, for spring use. Sow *Spinach* at the middle and end of the month for the main winter crops. Mulch late crops of *Peas*, and keep them well watered. Train and stop *Tomatos* frequently, so as to cut away but little at any one time.

FRUIT GARDEN.

The more vigorous shoots of fruit trees—dwarfs, espaliers, pyramids, and wall trees, will have pushed fresh shoots from where formerly stopped. Beginning with the uppermost and most vigorous, let these be again stopped to about 2 inches above their previous stopping; this will encourage the formation of fruit-buds on the parts below the stopping, instead of a long useless shoot, furnished only with wood-buds, which, unless it may form a leader, would have to be cut away at the winter pruning. But where it is desirable to strengthen a shoot, which can only be done by increasing the number or size of the leaves, it will be advisable not to repinch or cut so closely, and perhaps not at all. Keep the upright and strongest shoots of wall trees closely nailed in, but allow the weak and horizontal ones more freedom. This will tend to maintain the balance of strength among the branches, and consequently their health and fruitfulness. Syringe in case of red spider. Green fly is easily destroyed by snuff, if that so called be made of tobacco leaves. Earwigs are good judges of the ripest and best fruits, but they mark the finest with unsightly holes. They will take shelter in tubes of any kind, but they prefer the soft pithy lining of dry Bean stalks; cut a number of these in lengths of 5 or 6 inches and place among the branches, and in the morning the insects can be blown out of the stalks into a bottle of water. Gather fruits as they ripen *Gooseberries*, *Currants*, and *Raspberries* are best got when cool and dry, but *Peaches* and *Nectarines* are not deteriorated if gathered during hot sunshine.

FLOWER GARDEN.

Continue to keep *Walks* and *Lawns* in good order; keep the borders clear of all decayed flower-stalks, and of everything not necessary to be seen. Tie up plants requiring support; prepare rods and stakes for such plants as may require them. Syringe the foliage of *Roses*, and clean the stems of standard ones with a brush and water. Plant out *Wallflowers*, *Sweet Williams*, and other *biennial plants* where they are intended to flower. *Evergreens* may be transplanted towards the end of the month. If the weather is cloudy, so much the better; if not, shade sufficiently from hot sun, and keep the surface of the ground moist under the shading. By this course success will be insured, vegetation will go on, and fresh roots will be established before winter. Clip Box and any *hedges* that would have an unsightly straggling growth if not dressed before the winter pruning.

FLORISTS' FLOWERS.

Auriculas.—Fumigate or use tobacco dust to destroy green fly. The general repotting should take place early in the month; three and four-inch pots will be most suitable; if old ones are used they should be well washed. Shift young plants that are in small pots into those a size larger. The strongest seedlings should be encouraged by potting them singly. *Carnations and Picotees.*—The general layering of these should be proceeded with immediately, and finished by the 15th, or at all events by the 20th. Transplant pipings into sandy soil when struck. *Dahlias.*—Mulch if not already done; water over the foliage every evening in dry weather; trap earwigs by means of small flower-pots lined with hay and inverted on the top of the stakes. *Pansies.*—Plant out young stock, and continue to strike cuttings; sow seed, and if necessary apply sulphur to check mildew. Sow *Ten-week Stocks* for winter flowering. *Pinks and Violets.*—Pot up strong roots for forcing.

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Prince Albert Victor

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HYACINTH PRINCE ALBERT VICTOR.

WITH AN ILLUSTRATION.

The Hyacinth is essentially a domestic plant, a pet plant, which may be acquired at trifling cost, and is capable of yielding unbounded pleasure without alloy. You buy the root in a clean, dry state, place it in a glass—if plain at the cost of sixpence, if ornamented at the cost of half-a-crown, and in a few weeks you realise the bright colours, pleasing form, and agreeable perfume of one of Nature's loveliest gems. From Queen to cottager, who would be without flowers in the cold, cheerless months of January, February, and March, when they may be obtained with so little trouble, and at so reasonable a cost? Both bulb and glass may be purchased at from a shilling upwards. In glasses or vases in the dwelling-house, in pots in the conservatory, in beds and borders out of doors, Hyacinths are equally desirable, equally beautiful.

Those who may have seen the Hyacinths at the spring shows of the present and past years must have been struck with the rapid progress that has taken place in the development of this flower. The skill of the horticulturist has been evinced alike in the production of new varieties, and in the improvement of the cultivation of the older kinds. Such spikes and bells of Lord Wellington, Le Prophète, Charles Dickens, Queen of the Netherlands, and others long familiar, could hardly have been imagined by those who have been content to follow year by year the old prescribed rules of cultivation. Verily a new era has dawned on the Hyacinth. The fresh light recently thrown on the many processes of cultivation by the observations and experiments of the correct observers and diligent workers in horticultural science, has here, as elsewhere, been productive of rich and abundant fruit. Until recently our best *dark* red Hyacinths were feeble in spike, producing small, narrow, and crumpled bells, bearing no comparison in size and form with the best light reds, blues, and whites. It is with satisfaction, therefore, that we hail in the subject of our present plate, Prince Albert Victor, a deep red flower, which is so marked an improvement in these respects. The habit and growth of spike is that of Von Schiller, which in this point has hitherto stood in advance of all others, and the colour is a rich dark shining crimson. The spike is decidedly longer and broader than that of any *deep* red Hyacinth; the bells, too, are of good shape, and very close on the spike. The root is round and handsome, and equally suitable for pots or glasses. The best of the old deep reds are Amy, Lina, and Mdlle. Rachel; of the new ones, Garibaldi, Linnæus, Reine des Jacinthes, and Vuurbaak; but Prince Albert Victor is in advance of all these, and will doubtless eventually figure in every choice collection of these beautiful spring flowers.

Our drawing was taken from a spike grown and furnished by Mr. William Paul, of Waltham Cross, who exhibited specimens before the Royal Horticultural and Royal Botanic Societies of London in the spring of the year, and by the former a first-class certificate was awarded. It is uncertain at what date this flower will be offered to the public. It is at present exclusively in the hands of the raiser, and the slow process of multiplying the Hyacinth will, probably, prevent its distribution from taking place for at least two years, and even then the number of roots to be disposed of will be limited. It takes four years to flower a Hyacinth

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from seed, and when found to be worth multiplying, another four years before good flowering roots can be brought into the market.

P.

PEAS, NEW AND OLD.

Considerable pains have been taken from time to time, in the Chiswick Garden, to find out the distinct and the meritorous sorts of Peas—an important product of the kitchen garden, and one which it is necessary the gardener should know how to secure to the best advantage. A few years since a very extensive trial of sorts was undertaken, and proved very successful. The record of this experiment will be found in the *Proceedings of the Royal Horticultural Society* (i., 339). Last year further trials were instituted, but the crops were damaged, so that the results were imperfect. This year a more extensive, and, as it has proved, a more successful trial has been instituted, and it is the results of this, as determined by the Fruit and Vegetable Committee of the Royal Horticultural Society, which we shall now briefly record.

The earliest Pea was long considered to be that called Early Frame, which varied slightly, although its variations could scarcely be considered as permanently distinct. The Double-blossomed and Single-blossomed Frames, Early Nimble, Early Racehorse, and many other names were borne by these variations of the Early Frame; and from amongst them arose the Early Kent, Early Emperor, and Prince Albert, and subsequently Sangster's No 1. It will always happen that among a number of samples like these, consisting of varieties with differences almost imperceptible, some in the course of repeated sowings will exhibit a more luxuriant habit than others, and this militates against earliness; some, on the contrary, gain earliness at the expense of luxuriance, and this is what has happened in the case of Dillistone's Early, which is dwarfer and more slender than its immediate relatives.

Dillistone's Early has, when true, been found at Chiswick to be the earliest of all Peas. It is quite identical with *Carter's First Crop*, *Sutton's Ringleader*, and *Veitch's Early*, which, all being sown on the same day, respectively bloomed, slatted, and became fit for use on the same day. They were, moreover, all injured by the frost more than any other, and in an equal degree; while Sangster's No. 1 and its variations, were not injured in the slightest degree, under the same conditions.

Sangster's No. 1 is synonymous with *Daniel O'Rourke*, and is a good early Pea, a taller grower, and a day or two later than Dillistone's Early. *Dickson's First and Best*, a vigorous and free-bearing Pea, is a first-class selection of Sangster's No. 1. Very closely allied are the following:—*Carter's Improved Emperor*, very similar to Dickson's First and Best, free-bearing, and a very excellent stock of Sangster's No. 1. *Taber's Perfection*, identical with *Early Perfection* (Brown), a day or two later, and producing more haulm than Sangster's No. 1. *Young's No.* 1 (Veitch), a capital first early Pea, 4 feet high, of about the same earliness as Sangster's No. 1, but taller and stronger, a good cropper; the ripe seed is of a pale olive colour, darker than any of the others in the same class. *Washington* is the same as Early Emperor. *Carpenter's Express* and *Hooper's Early Rival* represent run-out mixed stocks of early Peas. *London Conqueror* is a third-rate stock of the old Early Frame.

Eley's Essex Rival is seven to eight days later than Sangster's No. 1; it is a large pale-podded white Marrow, with blotched foliage, about 4 feet high, of the class of the old Ringwood Marrow; the Peas when cooked are of a nice green colour; it is very productive, and a most excellent Pea. *Stanstead No.* 1 is identical with it.

Little Gem (Turner), a blue wrinkled Marrow, is truly a little gem, coming into use but a few days after Sangster's No. 1; it has very large pods, and is very productive, and of excellent quality; it cannot be too highly recommended. *Multum in Parvo* (Nutting), resembles Little Gem, but has somewhat broader pods, and is a few days later than that variety. *Nutting's Early Seedling* very much resembles Multum in Parvo, and it is about the same in point of earliness as Little Gem; it is a prolific and good Pea.

Dwarf Waterloo, from 12 to 18 inches high, is ten days later than Sangster's No. 1, pro-

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ducing very large pods, well filled, and is an excellent Pea, earlier than, and an improvement on, Bishop's Long-podded.

Sudbury A1 and *Nutting's No.* 1 are identical. It is a very excellent Early White wrinkled Marrow, about 18 inches high, three days earlier than Alliance (which with Climax and Epicurean is superseded), and with larger and better-filled pods.

Mr. Laxton has raised several hybrid varieties of great promise. *Alpha*, obtained by crossing Laxton's Prolific Long-pod with Advancer, is a wonderful Pea, as early as Dillistone's Early, but a blue wrinkled Marrow, with immense pods curved at the point like the Auvergne, the Peas large, of a deep green colour, about 2 feet 6 inches high, not branching. *Laxton's Quality*, a seedling from Laxton's Prolific and Little Gem, is another wonderfully fine Pea, a second early blue wrinkled, with immense pods of a pale green colour, 4 feet high. *Laxton's Manifold*, of the same parentage as Alpha, is a second early green Marrow, with very large, long, deep green pods, about 4 feet high. *Laxton's Supreme*, a seedling from Prolific and Little Gem, is a second early green Marrow, with the longest pod of any Pea in the collection, of a deep green colour, nine and ten Peas in the pod, about 4 feet high, and prolific. When permanently fixed, these Peas, and others in Mr. Laxton's hands, will be most valuable acquisitions.

Maclean's Advancer, a green wrinkled Marrow, 2 feet 6 inches in height, about seven days later than Sangster's No. 1, is one of the finest and most productive Peas in cultivation, bearing a great profusion of long, not particularly broad, but remarkably well-filled pods from the ground upwards; there are from seven to nine Peas in each pod of excellent quality. *Princess of Wales* is very similar in appearance to Advancer, but several days later, the pods rather smaller; very prolific; the ripe seed of a very light green colour. *Prince of Wales*, a green wrinkled Marrow, 3 feet in height, is very similar to the preceding, prolific, a few days earlier, and with smaller pods than Veitch's Perfection.

Veitch's Perfection, a green wrinkled Marrow, is a first-class Pea, about 3 feet 6 inches in height. Sown at the same time, it comes into use three weeks after Sangster's No. 1. The pods are very large, broad, of a beautiful green colour, with from seven to nine large Peas in each, of very fine quality. The leaves are large, the whole plant of a somewhat gross and succulent character, and rather tender. When this Pea succeeds well there are few to equal it; but in cold wet seasons and poor soils it is comparatively worthless. *Lord Palmerston*, *Laxton's Leader*, and *Laxton's Champion* are all very near this. *Hairs' Dwarf Mammoth* is its parent stock, and is inferior. *Maclean's Hero* is a few days earlier and dwarfer, and is a prolific and very good Pea. *Dixon's Yorkshire Hero* is very similar to Maclean's Hero.

Maclean's Premier is a green wrinkled Marrow, about 3 feet 6 inches high, a few days later than, and not of such a succulent growth as Veitch's Perfection; a very great cropper, the pods of a large size, seven to nine Peas in each, of very excellent quality; a first-class Pea, said to be Dr. Maclean's best. *Smithies* appears to be an indifferent stock of it or of Veitch's Perfection.

The Prince (Stuart & Mein), is a green wrinkled Marrow, with a fine vigorous constitution, about 3 feet 6 inches high, a few days later than Veitch's Perfection; it is an abundant bearer, with large and well-filled pods, containing from seven to nine Peas in each; a most excellent Pea.

Maclean's Wonderful is a white wrinkled Marrow, about 3 feet in height, fourteen days later than Sangster's No. 1; it is a wonderfully profuse bearer, the pods are large and well filled, with from seven to eight Peas in each of excellent quality; a first-class Pea, with a fine vigorous constitution. *Prolific* (Turner), a white wrinkled Marrow, is rather dwarfer than Wonderful, about the same in point of earliness, a very abundant bearer, and of excellent quality. *Nelson's Vanguard* (Sutton), is a small-podded white wrinkled Marrow, earlier than Alliance, about 18 inches in height, very prolific, but not well filled.

Fairbeard's Nonpareil, a white wrinkled Marrow, is a very distinct variety, about 5 feet in height, and a great bearer, the pods long and narrow, with seven to nine rather small Peas in each, packed exceedingly close together. The dried Peas are a very distinct sample of a brownish white colour, rather small, and so regular that they look as if they had been squared in a mould.

Champion of England, an old and well-known much-esteemed green wrinkled Marrow, 5 to 6 feet in height; when sown at the same time as Sangster's No. 1, it comes into use fourteen days after it. *Fortyfold* and *Fairbeard's Fortyfold* are identical, three or four days later, and with somewhat larger pod than the Champion of England, and evidently selected from that variety.

Ne Plus Ultra.—This is the best and most reliable of all the tall wrinkled Marrows; it is a green wrinkled Marrow, from 5 to 6 feet in height; when sown at the same time as Sangster's No. 1, it comes into use twenty days after that variety. The plant is of a fine, hardy, vigorous constitution, and a most abundant bearer. The pods are large, of a deep green colour; when opened they are still more vividly green, with from seven to nine large Peas in each, of a somewhat lighter shade; the flavour is excellent. *Knight's Albert Edward*, *Pearce's Gardeners' Delight*, and *General Wyndham*, are identical with Ne Plus Ultra.

Tall Green Mammoth grows to about the same height as Ne Plus Ultra, and coming into use at the same time, may be distinguished from that variety by the much lighter green of the pods and Peas. It is excellent in quality, and very productive. The *Mote Marrow*, *Strathmore Hero*, and *Competitor*, are identical with it.

The remaining sorts, chiefly late, and often of tall growth, must be noticed in a future paper.

A. F. B.

THE PRODUCTION OF ROOTS FROM VINE STEMS.

In reference to the editorial note appended to my communication on this subject (see p. 174), I beg to say, that at no period did the roots suffer from drought. The continuous vigour of the Vines, and their productiveness, prevented any suspicion of that kind. Nor was it possible that such an occurrence could take place, as a regular and necessary supply of water was never omitted. Further, the appearance of these roots is not a casual occurrence, but they show themselves year by year.

Lately, when on a visit to Mr. Harrison, of Tyntesfield, near Bristol, we happened to discuss this question, and I find he has arrived at the same conclusion as myself, reasoning exactly from the same premises as mine.

Tortworth Court. ALEXANDER CRAMB.

[As a fact tending to the elucidation of this question, we may cite the case of the great Vine-house at Chiswick. That, as is well known, is treated for a summer crop; very little forcing is had recourse to; and in so large an area the hot confined atmosphere, to which our correspondent refers the rooting of Vine stems, is much less likely to occur, than in smaller houses used for early forcing. In this house some half-dozen Vines, perhaps, produce stem-roots, but the Vines generally do not bear them. The cause cannot in this case be atmospheric, or the effect would be more general. It must, we think, lie in the imperfect action of the proper roots, which may arise from various causes, such as delicacy of constitution, temporary ill-health, uncongenial soil, defective drainage, cold borders, drought, excess of liquid manure—from anything which would arrest the healthy progress of the roots.—EDS.]

WINTER SPINACH.

In many places there is a great demand for Spinach during the winter and spring. To provide a good supply is, therefore, a matter of some consideration. The first point to be attended to is to sow the seed in proper time. If sown too early and hot weather follows it is apt to "run;" and when sown too late, if cold weather follows, it rarely gets to a size fit for use. I have sown it repeatedly, at different times, from the middle of July to the middle of August. The sowing for winter use should not be made later than the first week in August, in this part of the country. It is in general safer to be a few days too early than a few days too late. The principal sowing I would advise to be made about the end of July, or as soon as possible after the 1st of August, and a second sowing to be made about the 7th, certainly not later than the 10th of August. Some grow the Flanders Spinach, I prefer the Prickly-seeded or common Winter Spinach. If the ground be in a proper state, and there is an appearance of rain, I like to sow as soon as possible after the 1st of August.

I sow in open, dry situations, in drills 14 or 15 inches apart, and after the plants have come up, and are of sufficient size, they are thinned to

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8 inches apart in the rows. The ground between the rows is frequently hoed to kill weeds, and to keep it open and loose.

When properly attended to, it will be fit for use towards the end of October. In gathering Winter Spinach for use, the largest outer leaves only should be picked off; those in the centre of the plants should be left to grow bigger. By going carefully over it in this manner the plants will yield a supply of leaves all the winter and spring. A portion of the winter crop should, if possible, have a few spare lights put over it. In the case of a heavy fall of snow it can then be more readily gathered. The more that can be protected the better, for though hardy enough to stand very severe frosts, yet severe frosts and cold winds cut it up very much, especially if it be late-sown.

By making two sowings, one about the end of July and the other about the 7th of August, with proper attention afterwards, there is no difficulty in having plenty of fine Spinach be the autumn what it may. Should the first sowing get a little too forward it may be used first, and the second or late sowing will in that case in general be in fine condition to stand for the winter supply. When the sowings are made late the plants attain no size, they yield no supply of leaves, they get eaten up by slugs, and before winter fairly sets in, the greater portion disappears, and a want is afterwards experienced.

Stourton. M. Saul.

CULTURAL MERITS OF BEARD'S HOTHOUSES.

The science of cultivation may be compared to a five-stringed musical instrument. The first string rests upon the earth, the second is plunged into the water, the third pierces through the air, while light and heat reach the highest notes, and complete the gamut of Culture. Vegetable Life is the piece to be performed on this instrument, the skill of the cultivator is the presiding artist, and the full-toned satisfaction of abundant produce, and the delicate touches of artistic beauty, are the gratifying results. To secure these, however, in the highest possible perfection, the performer must possess talent, and his instrument quality. This talent should include head-knowledge, hand-expertness, and discrimination of judgment. The first will provide a lofty ideal, the second embody it in practice, and the last pass a true verdict upon both. The instrument should also be characterised by structural completeness, facility of access to all its parts, and compass or power of expression. With such an instrument, and a presiding genius of versatile talent, the results can hardly fail to be satisfactory.

Unfortunately it sometimes happens that both performers and instrument are bad, and then failure, utter and complete, is certain. More frequently the former has talent, and the latter is miserably faulty, and then success is difficult, but not utterly impossible. Occasionally, too, the best instruments fall into wretchedly stupid hands, which leads to the most provoking failures. All that is needed to render success as certain as the nature of our business permits of is—to drop our musical figure—skilful men, and good tools.

Presuming that the former may easily be had for a fair reward, I desire to urge a claim here for the latter. Confining myself to the matter of glass houses, how thoroughly inefficient most of them have been, and are, for the object in view. That object may be defined as the perfecting of tropical produce in a temperate clime, or the changing of a winter climate into a

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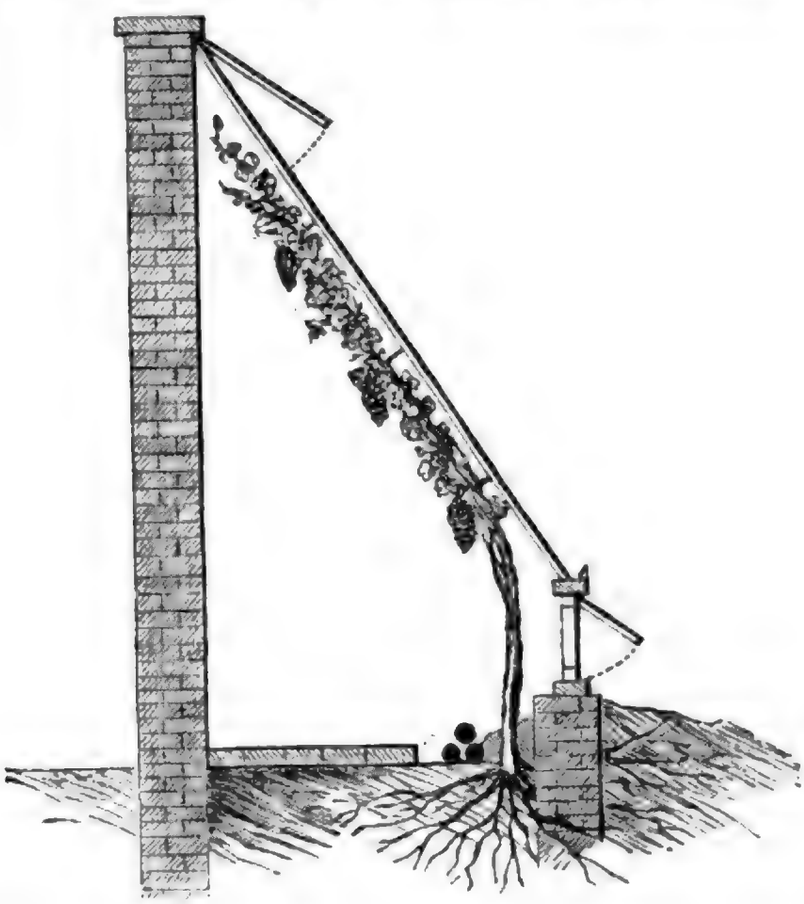
summer one. Returning to our instrument for a moment, the first necessity of tropical produce with its luxuriant energy, is a rich tropical Soil. But how many gardeners are warned off from touching this string, for fear the bit of rich old meadow should be spoiled? The next demand of tropical vegetation is Water—soft, pure, and warm. This, too, is hedged round with difficulty; it is sometimes almost denied, or, if granted, is provided cold, impure, and hard; and if furnished in sufficient quantity for the roots, how seldom are facile arrangements made for watering the air in a perfect and systematic manner? Then there is the Air string. Well, it is often placed almost beyond reach or control, though it is the one chord above all others that needs most fingering, and the one that structural faults render most difficult to regulate.

And, then, what shall we say about Heat? Simply this—that because



Jones built a lean-to to shelter bedding plants, Brown a Heath-house, and both run one four-inch pipe once round to exclude the frost, therefore Robinson, who wants ripe Grapes and Peaches in April, and Roses at Christmas, places one also in his forcing-house. And so the gardener has to keep his hand on this string (or rather on the fire-shovel), the whole winter night, and strain it nigh to rupturing to get enough warmth, all because houses are heated by red tape routine or example, and not on definite scientific principles, or in accordance with common sense.

Lastly, we come to Light—Nature's great transforming power. Our climate has diluted it down with fog, soot, and aqueous vapour, until it is but a weak mixture at best of tropical brilliance; and our builders of glass houses, not content with this reduction, have proceeded to shut out a further

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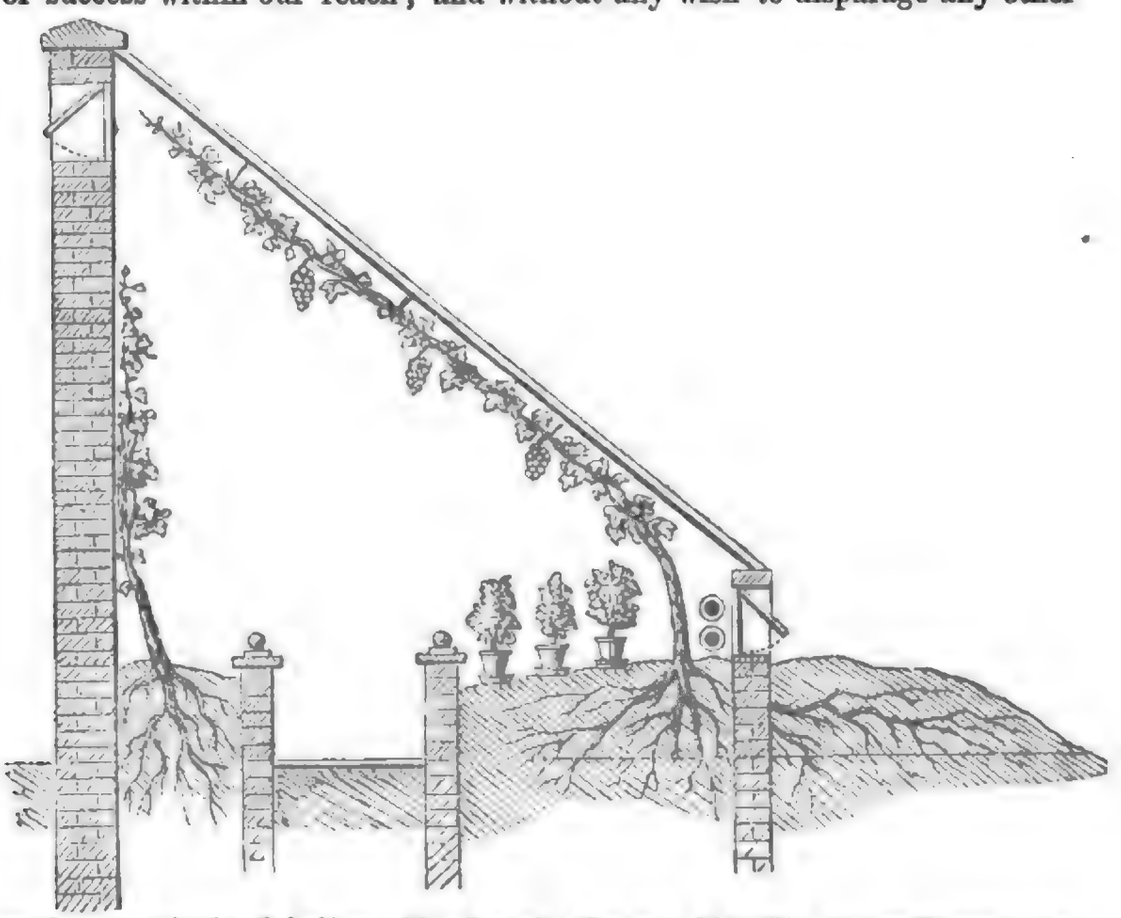
proportion of from one-sixth to one-half of all that remains in our murky atmosphere. Tropical plants are thrust into these architectural dungeons, and a produce is demanded equalling or exceeding that returned under tropical skies. To the honour of cultivators be it recorded, that these demands have often been met. There are cultural as well as musical Paganinis, who can almost do impossibilities, with only one string, but such men are not numerous, and in common fairness we ask for the free use and control of all the five. One would suppose that where the expense is incurred of covering a given surface with glass, the best soil would be freely placed at our disposal; but this is often not the case. The improvements in garden architecture have placed more of the other four elements of success within our reach; and without any wish to disparage any other



modern methods, I believe Mr. Beard's Patent Metallic Glass Houses are nearly perfect for cultural purposes. They collect, and may readily be made to store and heat their own water. They absorb and store up nearly every ray of solar heat, while their closeness husbands it up for future use, as well as conserves to the utmost the artificial supply. The supply and temperature of the air is also under the most facile management, and the easiest possible control. The entire house is flooded with light, the illuminating power of clear glass being scarcely at all affected by the thin T-shaped iron bars that receive the glass and form the framework of the roof. In one word, these houses, of which two examples are given above, bring within the reach of the cultivator his chief desideratum—a tropical climate to bear upon tropical produce.

Hardwicke House. D. T. Fish.

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FUCHSIA FULGENS.

How seldom one now-a-days meets with this fine old Fuchsia in gardens! And yet it is by no means unworthy of cultivation. Either as a pot plant, or for vases, or for bedding, it is very ornamental. Large plants in large vases are really grand objects; but they must be old plants with plenty of old wood. The foliage is then smaller, and the racemes of flowers larger and more numerous than when young plants are grown. When young plants have plenty of pot room they make free growth, and large fine foliage, but do not produce the quantity of flowers that old woody plants do. When grown out of doors the plants should be housed early in the autumn before the wood gets injured by the frost. They will do in any position where they can be kept dry and torpid until the following spring. They seed freely, and young plants can be raised from seed to any extent; but young plants give but a very imperfect idea of the beauty of the species. It is only when they have been grown for three or four years, and have got to be good-sized plants, that their real merits are seen.

Stourton. M. Saul.

HINTS ON LETTUCE CULTURE.

In most families of taste it has become of late years quite a desideratum to have a good salad on the table, almost, if not quite, all the year round. With proper conveniences even this is not difficult of attainment; but under ordinary circumstances nine or ten months' supply may be kept up, with only the ordinary amount of care and management. The components of salads are various; but as Lettuces and Endive form the principal bulk, I shall confine myself in this paper to a few remarks on the culture of the former, which I trust may be useful to beginners by way of reminder, as I very much fear that many of them do not pay that attention to the routine of kitchen garden management, which they will find to be an absolute necessity when the responsibility of garden management falls upon their own shoulders.

There is probably no crop under culture which requires more attention to be paid to the keeping up a regular succession of sowings than that of Lettuces. To begin at the beginning. I usually commence sowing at the end of January, or early in February, according to the state of the weather, by throwing up a moderate hotbed, on which a one-light box is placed, and the seed sown in a light and rather dry sandy soil. Air may be given at once to let off steam, and the quantity increased as soon as the seed is up, if the weather will permit. The tendency to damp off may be corrected by sprinkling over the surface a mixture of sand and ashes, well dried, and applied warm. Early in March the plants will be ready to prick out, and for a large supply a two-light frame may be put upon a slight hotbed, using light sandy soil as before, and pricking the seedlings out thereon at 3 inches apart. The remainder from the seed-bed may be pricked out on a warm border in the natural soil, and covered with hand-lights or curate's vineries. The whole must be kept well ventilated, and gradually hardened so as to bear free exposure; and as soon as they have attained a good size, they should be transferred to the open quarters.

It is as well to remark here, that for summer Lettuces the ground can scarcely be too good. When planted in deeply trenched well-manured soil they will grow larger, and remain much longer without running to seed,

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than they would do in poorer soil; but the contrary is the case with those which have to stand the winter. Let it also be remembered that the plants under consideration are intended to succeed those which have stood the winter, and formed the spring supply for the table.

We will next turn our attention to their successors, because the best of them all, however well treated, have only a certain duration; they will run to seed. Therefore, about the middle of March, weather permitting, make a tolerably copious sowing on a warm south border of the best varieties of the Cos tribe, and over the beds throw some dry bracken with a few Pea boughs to keep it in place, taking care, however, to remove it before the plants get drawn. The next sowing will be about the middle of April, and must include both Cos and Cabbage varieties. It is a great advantage to sow them in rows at 15 inches apart, and in taking up for transplanting to leave strong plants at the proper distances along the rows, for these will stand longer without running to seed than those which are transplanted. This tendency to run to seed will be so great, even in the very best varieties at this season, that an extra amount of care must be used to keep up the sowings; for where plants stand thickly in a bed or in rows, a very few days of hot weather will suffice to render them useless for transplanting purposes, and an extra sowing or two will always come in useful where a supply must be kept up. The same remarks will apply to May and June, during which at least three moderate sowings may be made. I would remark, however, that the Cos varieties sown in June are not liable to run to seed in good ground, and will furnish an abundant supply in the early part of autumn. This brings us to another very important sowing, which should be made from the 10th to the 15th of July. I say important, because the plants from this sowing are intended not only to carry the supply from the open quarters well on into the winter, but also to furnish a good and sufficient number for lifting and storing away in sheds and cold pits, where they can be well ventilated in fine weather and protected from frosts.

Finally, A good breadth should be sown about the 12th of August to furnish plants to stand through the winter, and supply the table in early spring. For this sowing I use Bath Brown Cos, Hardy Green Cos, and Victoria Cabbage Lettuce. The latter is best sown broadcast on a warm sheltered border where it is intended to stand. To guard against contingencies, I generally make a sowing early in September, which can be covered with a frame and protected in very severe winters; this proves useful in some seasons, but I generally find those sown on heat to supersede them.

Redleaf. JOHN COX.

NEW GARDEN PLANTS.

A GOOD accession to the ranks of hardy plants has this advantage over the finest of tenderlings, that every one who cares to do so, can indulge in its cultivation. This recommendation attaches to *Draba violacea* (Bot. Mag., t. 5650), a dwarf suffruticose perennial, whose numerous branches bear a profusion of small obovate-oblong hoary leaves, and are terminated by subcorymbose heads of deep violet-coloured flowers, produced in spring, and which are of unusual beauty for the often obscure and weedy family—that of Crucifers, to which the plant belongs. It comes from the lofty Andes, and is found on loose rocks at elevations of from 13,000 to 15,000 feet, so

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that it will be a lovely acquisition for rockwork. Mr. Anderson-Henry has been the fortunate raiser, from seeds furnished by Professor Jameson. A fine companion for it would be Messrs. Backhouse's *Silene pennsylvanica*, represented at p. 206, which, though an old plant, has long been lost to our gardens until now reintroduced.

In *Polymnia pyramidalis* (Revue Hort., 1867, 211, with fig.), we have what our French neighbours strongly recommend as a plant for the decoration of the summer garden, along with Ferdinandas, Verbesinas, &c. It is of arborescent habit, attaining 40 feet high or more in its native country, which is New Grenada, in the subalpine districts of which, it grows in company with Cherries and Willows. It is of rapid growth, attaining 10 to 12 feet in a season, with a pyramidal head, and large ovate-cordate hairy leaves, which endure well under sunshine, measure about 12 inches broad and 16 inches long, and are borne on a long decurrent petiole. The flower-heads are numerous, yellow, and arranged in cymes. The plant has been grown in the garden of the Paris Museum, and was raised from seeds obtained from New Grenada, by M. Triana.

M. Verschaffelt figures a Bromeliaceous plant, which he calls *Vriesia gigantea* (L'Illust. Hort., t. 516). It is a stemless stove herb, with numerous green, elongated, shortly acuminated, radical leaves, and a stout erect flower-scape 9 to 12 feet high or more, of a purplish colour, and furnished with oval acuminate leaf-like bracts of the same colour, from which issue very numerous, distichously-arranged, drooping racemes, bearing thirty to forty odoriferous flowers, which when expanded show three long, channelled, acute, spreading white segments, appearing to issue from a green oblong bud, formed by the convolute outer segments. It comes from the scarped rocks of the Organ Mountains, where it grows at an elevation of 3-4000 feet, and whence it was sent to M. Verschaffelt's establishment by M. Glaziou, Director of the public garden at Rio de Janeiro; and will, no doubt, form a striking addition to plants of this class. Another interesting stove plant, this time selected from Messrs. Veitch & Sons' collection, is that which they had named *Hypocyrta brevicalyx*, but which Dr. Hooker, puzzled as to its proper genus, prefers to call *Gloxinia hypocyrtiflora* (Bot. Mag., t. 5655), a plant which "in its habit, fibrous roots, and the presence of propagula, or shoots bearing leaf-buds, is a Gloxinia, in its corolla a Hypocyrta, and in its glands a Gesnera, while in the small calyx it differs from the ordinary forms of all these genera." It is a dwarf stove plant, with opposite roundish ovate leaves, marked by white ribs and main veins, and bearing axillary, swollen, nearly globular, pubescent flowers, with a very small closed mouth, the lower part yellow, the upper bright vermilion scarlet. It comes from the Andes of Quito, and is a rather pretty thing for basket-culture in the hothouse, though we can scarcely believe it to be a Gloxinia. Another beautiful Gesneraceous plant, *Nægelia fulgida* (Gartenflora, t. 538), has recently been raised by M. Ortgies from Mexican seeds sent by M. Roezl, and is now in the hands of M. Van Houtte, in whose establishment the plants of this race have been so successfully cultivated and hybridised. It grows on rocks towards the coast, often so near that the spray of the sea can wet them. The plant, which has the general character of N. zebrina and cinnabarina, has velvety bright green roundish ovate leaves, cordate at the base, and a branching erect inflorescence of drooping tubular flowers of a pure scarlet, white spotted with red on the under side of the tube. It differs from its allies in having the corolla tube cylindraceo-campanulate from a broad scarcely contracted base, and slightly tetragonal, while the

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under side is not ventricose, and in the limb segments being triangular and acute. It is a good addition to the other fine plants related to it, which we already possess. *Ipomœa Gerrardi* (Bot. Mag., t. 5651), is a Convolvulaceous plant, introduced to Kew from Natal, where it is called Wild Cotton. It forms a tuberous stock above ground as large as one's fist, and the annual stems flower copiously in a moderately heated stove. The leaves are roundish cordate, and the flowers large and pure white.

Among Orchids of recent introduction we have to notice *Epidendrum Cooperianum* (Bot. Mag., t. 5654), a pretty plant of second-rate merit, but well worth growing for its lively rosy-lipped flowers. It has rigid erect stems, with distichous lanceolate acute leaves, and crowded nodding racemes of flowers, of which the sepals and petals are yellowish brown, and the lip broad, and of a bright rose. This plant is worth a place in our Orchid-houses, as a not inelegant form of a genus which seems to be now held more in favour than it was a few years since.

M.

A FEW WORDS ON DORSTENIAS.

These curious plants meet in a general way with but little attention, notwithstanding that some of them have elegantly cut leaves, and others have the leaves decorated with silvery markings; notwithstanding, moreover that they are of neat compact habit, and easy of cultivation in a moderately damp stove.

The fructification of these plants is indeed remarkable, and their relationship would be little suspected at first sight, for, notwithstanding their very different habit and generally low herbaceous growth, they are in reality very close relatives of the common Fig, and have a very similar fructification. The Dorstenias produce amongst their leaves certain green fleshy bodies springing up on long stalks. These are of very different forms in the various kinds of Dorstenia; some are hand-shaped, some horned, some nearly quadrangular, and some cup-shaped. These fleshy bodies, so irregular and varied in shape, constitute a basis or receptacle, on the upper side of which are seated numerous flowers, a portion of which eventually produce small rounded minute fruit or seed-vessels. The fruit of a Fig is a somewhat pear-shaped body, presenting externally a rather rough skin, with a small opening at the broader end leading directly into the interior, where is found according to its age, a multitude of small flowers or of seed-vessels, which when ripe constitute the fleshy, luscious portion so much admired by fig-eaters. Here the pear-shaped body is the receptacle, and the flowers are quite analogous to those produced on the receptacles of Dorstenias. The Fig may therefore be described as a Dorstenia with a bag-shaped fructification, having in addition other characters by which botanists are able to recognise differences constituting a good generic distinction between the two. The Dorstenias stand next the Figs in the same natural family, being their nearest allies.

The Dorstenias are plants found in tropical climates, both in America and Africa, and are called after Dorsten, an old botanist, who did good service to the science he cultivated. The species are said to have tonic and other virtues, and one or more of them are reported to have the power, when in the green state, to cure the bite of serpents! A few of the more remarkable species are well worthy of cultivation, and will much interest those who will

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give them a little careful examination. Among those which may be recommended to the cultivators of curious plants are *D. ceratosanthes*, *D. Houstoni*, *D. pilosa*, *D. tubicina*, *D. arifolia*, and *D. maculata*.

M.

COOL ORCHIDS—ODONTOGLOSSUMS.

Resuming my remarks on Odontoglots, I may in the first place observe that in my previous remarks on cool treatment (see p. 176), the expression—the very essence of the pseudo-bulbs was "*washed* out of them," should read *roasted* out of them. I now pass on to remark on other species.

O. Hallii is like an intermediate between *O. luteo-purpureum* and *O. gloriosum*. It is not so good as either, in any specimens I have yet seen or flowered, and it might be very well ranked akin to luteo-purpureum. A bad variety of the latter, and a good variety of the former need not fall out with one another on the score of beauty. The habit of O. Hallii is fully as vigorous, but it never yields quite so many flowers in the raceme. The differences in the formation of the pseudobulbs and leaves are something almost astonishing, and one can scarcely believe, before the flowers open, that a similarity of inflorescence could exist. This little bit of structural dimorphism is common to all the species that I have seen imported from Central America, and in no genera or species could be said to exist to the same degree, unless in Lycaste Skinneri.

O. Dawsonianum is simply a variety of rubescens, which is again a variety of Rossii. I can speak with a certain degree of confidence about

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these things, as I have flowered them all, and not long ago I sent along with the charming Lælia majalis, to one of the Tuesday meetings of the Royal Horticultural Society, several plants of O. rubescens which were fac-similes of Dawsonianum. In neither habit, nor general development of plant, is there the slightest diversity. Of course the white colour changes in the ground to a soft rose, but the structural features of Rossii or rubescens remain unchanged, the colours varying only as in the case of the common Sweet William, and many other plants of like sportive character. It is not less a charming thing for all that, and worthy of general culture. Its comparatively tiny habit renders it rather a difficult plant "to do," requiring plenty of moisture, a limited amount of pot room, and a comparatively close atmosphere.

All these vareties may be grown with the greatest success in a house suitable for Pelargoniums, and ventilated and attended to as regards moisture very much in the same way. The same winter temperature would answer well; and if plants of this kind were kept as near the glass and had the same careful supervision, as is demanded for our Lucy Grieves, Lady Cullums, Queen Victorias, and such-like subjects, there would be no cause for lamentation or annoyance. This difference in summer I would contend for—namely, that on wet days, or when the weather was inclined to be cold, I would always give a good brisk heat, modifying it by judicious ventilation. Let any of the readers of the Florist try this, and they will not fail.

Meadow Bank. James Anderson.

PETUNIAS.

Of the many free-flowering popular plants which are suitable for growing in pots, or for summer-bedding purposes, few bear stronger evidence of the skill of the cross-breeder, or of his great usefulness, than the Petunia. Allied, as its name implies, to the Tobacco plant (Nicotiana), and therefore belonging to the vast and varied order of Nightshades, one scarcely finds in the originals P. phœnicea, P. violacea (to which, probably, we are most indebted), P. intermedia, and P. acuminata—all of which have been intro-

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duced some time within the last half-century—such forms as might have been looked for as the parents of the many superb varieties, both single and double, which we now possess. It is not easy to forget the crowd of admiring visitors that constantly pressed around the first examples of the striped variety, now superseded, called Mrs. Ferguson, when shown in the form of three large specimen plants, about 1862, at one of the large shows held in the gardens of the Royal Horticultural Society. I refer to these specially for the purpose of drawing attention to the great beauty of the Petunia when grown *ad libitum*, and more in keeping with its general character than is possible when the plants are pinioned as prisoners to the ground, or restricted to under-sized pots. That it is a most adaptable plant it is needless to assert, though, as I shall endeavour to show, when grown more in keeping with its general character, far greater success is attainable than under any restrictive methods. How few even now are in possession of good plants of P. inimitabilis flore-pleno, which is so easily cultivable, and so useful for the embellishment of our generally-not-overcrowded cool structures during the summer! When mixed with Balsams, Cockscombs, Pelargoniums, and especially Fuchsias, these Petunias form the best of contrasts—a fact which becomes fully apparent if we but consider the beauty of such varieties as Princess of Wales, The Bride, magnificens, or gigantea plena, among the doubles, or of such single ones as Fame, splendida, Reine Hortense, and a few others of the larger selfs.

Very little care or labour is needed to grow fine showy specimens adapted to such uses. From the winter store pots, take good large cuttings in March, or early in April; strike them quickly in cutting-pots, pot them when struck into single pots, and encourage them to grow freely by placing them in a moderately warm, not over-moist atmosphere. Pinch them back as occasion requires to ensure compact plants; continue to give larger pots whilst growth alone is the desideratum, as frequently as the roots meet freely around the sides, and so manage them, in fact, that when it is intended they should commence flowering the pots may be pretty well filled with roots. Of course attention will be necessary to tie them out properly, for the twofold purpose of giving them room to grow, and to secure the shoots, which are very brittle, from breaking off.

Petunias look very pretty neatly trained up the stems of standard Roses, where these are sufficiently high for the purpose. In such a position they add beauty to what is otherwise ugly—a naked stem, without encroaching upon any other space. The greater impunity they enjoy in such a position from being moistened "by every passing shower" (for they have an aversion to too much surface-moisture), gives a tone to their flowering capabilities. Again, for similar reasons, a very suitable place for them is the base of a wall, or the base of trellis-work, in association with any other plants which may have become scantily furnished in the lower parts. Many an otherwise bare nook might, by a little study of these peculiarities, become a feature of beauty. The double sorts are well adapted for vase-work; they should not, in such a position, be planted too thickly, but turned out as moderate-sized promising plants, properly secured from the wind, they are peculiarly adapted, with their variable dark markings upon a Parian-like groundwork, to form the decorative finishings to vases of marble.

But there is another position, and another mode of growing them, which, I would suggest, should not be overlooked. We have our rows of Dahlias, and Hollyhocks, our Pyrethrums, Stocks, Everlastings, and Asters,

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and why not our rows of Petunias? They require no more care to produce them efficiently; they are second to none in the beauty of their markings, or the distinctiveness of their colouration. A row planted upon any of those side borders which are now almost invariably associated with the main walks in kitchen gardens, even with standard Roses in the centre, or in connection with any of the plants noticed above, would amply repay with their beauty the trouble expended in their production. To do them well, however, each plant must be placed at least 1½ foot from its neighbour; it must be tied out and staked in detail, and it must otherwise be attended to, as are Dahlias, by removing decaying flowers, applying manure water in dry weather, &c. The plants delight in a light, rich, open soil, and should be kept in a dry atmosphere during the winter, with just sufficient root-moisture to ensure reciprocity of action between roots and leaves. Seeds sown in March in a moderate warmth will germinate freely; and if pricked out into seed-pans and so forwarded, will, by the last week in May, be ready for turning out, or will prove efficient stuff for flowering in pots. Many and varied are the forms assumed by individual seedlings, more especially by those which indicate a cross-breeder's skill in the selection of parents with varied merits. I have lately seen many such, the produce of a single pod of seed.

Digswell. WILLIAM EARLEY.

THE CULTIVATION OF ALPINE PLANTS.

ALPINE plants are now so much engaging, as they deserve to do, the attention of plant-lovers, that we gladly introduce some remarks on their treatment, founded on the experience of the Messrs. Backhouse & Son, of York, who have taken up their cultivation with much spirit, and with great success. They observe in the preface to a recent catalogue in which their fine collection is very usefully described:—

The past two years have only confirmed our opinion that no form of horticulture surpasses, or indeed equals in interest the cultivation of these alpine gems, though, instead of revelling in the sight of *masses* such as Nature exhibits in the wild regions where the plants are found, we are limited to little tufts or fragments that, enchanting as they are, only convey to the mind a faint idea of what is yet in store for us. Think of a sheet of *Silene acaulis* measured last year on one of the Westmoreland mountains, 5 feet across! and imagine the effect of such a mass when in full bloom. For it not unfrequently happens that the pink, or rose-coloured, or crimson flowers of this plant are so densely clustered together as to form a solid mass of colour. And why should not our gardens be thus adorned? Time only is required, for by far the larger proportion of alpine plants are easy to cultivate, and even while small, abundantly repay the small amount of labour that is requisite. With something less than 25*s.* worth of rocks (costing here 9*s.* per ton), we have formed a rocky bank upon which many scores of choice Alpines thrive admirably. For though contact with the rock is necessary for some, it is not needful for all. The improved drainage afforded by a bank 3 or 4 feet high (in the composition of which a large proportion of rough sand should be generally used), quite suffices for the wants of many species; as, though "true mountaineers," they inhabit the glades and plateaus of alpine regions, where there is often a large area of rich vegetable soil without rock.

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One thing must constantly be borne in mind, that it is *an error* to suppose that 'little plants' require but very shallow soil! As narrow a crack or crevice as you please, only it must lead to an abundant supply for deeply rooting hungry fibres, that hate both 'starvation' and the irregularity of temperature and moisture inseparable from shallow soil. *Gentiana verna* is a little plant, its tuft of leaves rarely attaining the elevation of an inch; but we are not exceeding the truth in saying that it both likes (and apparently requires for full development), 18 *inches depth at least* of rich fibrous loam, interspersed thickly with blocks of limestone! It is almost impossible to get 'to the bottom' of its far-rooting tiny threads in a native locality. And the same rule holds good with multitudes, and cannot be too closely attended to. Any kind of stone will do for rockwork, but sandstone (millstone grit) is the best.

A host of beauties are usually ready to expand their blossoms with the earliest days of spring, and frequently even among the snow. Beginning with the last week in the old year, scores of pots of the lovely *Anemone apennina* have expanded their large blue flowers with us on a northern border, in spite of frost and snow. They always appear to bloom sooner in such a position than with a southern exposure—we presume by 'wintering' earlier.

A very large proportion of the most showy species may be grown in an ordinary border in common soil, and nearly the *whole* range of alpine plants (which constitutes one of the most interesting class of perennials), *may also be grown well in pots*, where a garden is devoid of the *rockwork* which best represents their natural 'element.' Whether cultivated in pots, or on rockwork, it may be well here to state, that after long experience, and far too much of that kind of 'misfortune' which usually attends 'experimenting' upon new plants, we find that, as a rule, it is an error to place in the shade in summer, for the sake of coolness, those species which inhabit very high mountain regions. These plants, as a class, hate the soft, humid, 'lifeless' atmosphere which shady situations in low districts afford. Living naturally on lofty ridges, they are constantly exposed to high winds and an atmosphere of crystalline clearness, through which the sun's rays dart down with a vehemence which often heats the rocks till you can scarcely bear to touch them. This brilliant sunshine in the day time alternating with excessively heavy dews or sharp frosts at night, are the *summer conditions* of a large number of the rarest and most beautiful species in their native abodes. And these, born near vast fields of perpetual snow, receive a rapid and permanent supply of moisture at the roots, which is checked only when wintry winds again bind everything in a mass of ice.

Very rapid and perfect drainage, combined with an equally rapid and continuous supply of water, are therefore essential to thoroughly healthy development, On rockwork this may be easily accomplished, by allowing water to escape from a pipe at or near the highest point, in a very slender stream, or 'fast drop,' which will keep a large 'district' below both more humid and cooler than when similar effects are aimed at by ordinary watering. Some species—such for instance as *Eritrichium nanum*, *Androsace lanuginosa*, *Cerastium alpinum*, and those plants generally which have silky or cottony foliage, evidently dislike having their leaves wet by artificial means, especially in winter; as in a wild state they are either buried during that season in dry snow, or subjected to frosts which destroy every particle of moisture. These must either be planted where an overhanging ledge pro-

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tects from snow and rain, or be grown in pots which can be placed under a glass frame admitting full ventilation in winter. Not that these plants are tender! They are nearly as 'hardy' as the rocks themselves; but their winter alpine atmosphere is dry, till the spring thaw sets in.

There are many alpine plants which are found chiefly (and perhaps some exclusively), in the grit of decomposed rocks carried down by torrents, &c. In this, there is sometimes very little admixture of earth, though what little there is is usually of the richest kind.

Crushed millstone grit, or coarse sandstone, forms an excellent substitute, and should if possible be largely mingled with the soil of a 'rockwork.' For some alpines we use equal parts of grit and earth—a mixture of rich loam and peat or leaf mould. If not procurable, river sand is the best substitute. Some species grow well in almost pure grit. There are, however, not a few, we have recently ascertained, which though found in grit ('*in glareosis alpium*') in a wild state, thrive better under cultivation if placed in pure loam in a narrow fissure of rock. The simple reason seems to be that they are frozen dry and *kept* dry for months in their own land in winter; while, when planted on rockwork, they are necessarily exposed to constant moisture during the winter months with us. The loam, from its compactness, does not receive or retain moisture so much as sandy or gritty soil, so that though unnatural in one sense, it is *more* natural in another. *Senecio incanus*, *S. carniolicus*, *Achillæa Clavennæ*, and others of this order illustrate it well. Their tendency to 'damp off' in winter is notorious, and we believe may be largely rectified by this means.

Another most important subject is *to suspend the abundant supply* of moisture, essential for health in spring and summer (in imitation of the melting of alpine snows), when the annual growth is made, so as to coax the plants 'to be quiet' as far as possible, and prevent a second and enfeebling growth. This seems very important to the *alpine Gentians*, and to the rare *Eritrichium nanum*. Natural rains will, as a rule, suffice after the end of August, and earlier if the weather be rainy. All artificial irrigation, except for bog plants, should then cease.

LAGERSTRŒMIA INDICA.

How rarely one now meets with this grand old stove plant! Why so beautiful a plant should be so little grown is a matter not easily accounted for, especially as it is easily cultivated, and when well grown and finely flowered is certainly one of the finest of late summer or autumn-flowering stove plants. I saw a magnificent specimen a few years ago at one of our local shows here. It was an old plant, and of good size, and covered with its beautiful flowers.

To flower it well, it requires a period of rest in winter. It should be kept in the coolest part of the stove during that season, and little or no water should be given to it. Towards spring, when it begins to grow, it should be watered as it may require, and be placed in a warm part of the stove; it will then grow vigorously. When this growth is finished, which in general will be about the beginning of June, it should have all the light and air possible for a few weeks to ripen the young wood. If the plant requires a larger pot it should at this time have one. It should then be kept warm and close, and encouraged to make a fresh growth, which it soon will, pushing again at the extremity of every young shoot. These are the flowering shoots. In a few

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weeks the plant will be covered with masses of its purple flowers; it will then bear comparison with most stove plants in flower at that season. After it has done flowering it should be kept in warm dry part of the stove to ripen the wood properly; it should then be kept during the winter months in a cool part of the house, and have little or no water till spring.

Besides being one of the most beautiful of stove plants, it is also one of the most easy to grow.

Stourton. M. Saul.

SILENE PENNSYLVANICA.

This beautiful little hardy plant, for which we are indebted to the Messrs. Backhouse, and of which plants have been exhibited by them at South Kensington, is called in America the Wild Pink. It is a herbaceous peren-

nial, and forms dense tufts 3 to 4 inches high. The flowers are rose-coloured or rosy purple, an inch or more across, and borne in clusters of six or eight together, on viscid and hairy stalks about 6 inches high. It is perfectly hardy, and grows in very sandy soil, in which its strong branching root buries itself deeply. Nothing can be more charming than a mass of this plant when covered with its bright rose-coloured flowers, which seem to carpet the soil or rock on which they are planted. So beautiful is it,

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that when shown on the occasion above referred to, it was at once rewarded by a first-class certificate. It is not a new plant, having been grown many years ago, but it has been lost, and is now again introduced by the Messrs. Backhouse. We refer to an article at p. 203, for general instructions as to its treatment. M.

WHITE LILACS FOR WINTER.

The White Lilacs of the Paris flower markets have long been famous, not only on account of their delicacy, but also the profusion in which they are produced. The following remarks, from a correspondent in Paris, will explain how they are obtained :—

If there be one flower more than another indispensable to the Paris flower market in winter and early spring, it is the white blossoms of the Lilac. Large bunches of it may be seen in every flower-shop as early as the month of January, and it is always associated with the early Violet and the forced Rose. This Lilac is the common kind, and yet it is produced perfectly white. The French florists have tried the white variety, but they do not like it—it pushes weakly, and then does not look of so pure a colour as the ordinary kind, which in its normal state bears lilac-coloured flowers. They force this common Lilac in great quantities in pots, and to a greater extent planted out, as close as the plants can be stood, in pits, for the purpose of furnishing flowers for cutting.

The plants that are intended for forcing are cut round with a spade in September, to induce them to form flower-buds freely ; and they commence to force early in the autumn. They at first judiciously introduce them to a cool house, but after a little while, they give them plenty of heat, and when once they are fairly started they get from 25° to nearly 40° C. [say from 77° to 100° Fahr.]. At the same time abundant humidity is supplied, both at the root and by means of the syringe ; but the chief point is, that from the day the plants are put under glass, they are not allowed to receive a gleam of light, the glass being completely covered with the *paillassons*, which are the neat straw mats so much used here for covering frames, pits, and all sorts of garden structures in winter. Thus the Lilac is made to push freely, and its white blooms are gathered before the leaves have had time to show themselves. The great degree of heat—a degree which we never think of giving to anything of the kind in England, and the total shade to which they are subjected, effect the bleaching.

The French commence to cut White Lilac about the end of October, and continue to do so till Lilac blossoms come in in the open ground.

W. R.

NOVELTIES, &c., AT FLOWER SHOWS.

The great Rose Show at South Kensington offered an occasion for a meeting of the Floral Committee, when first-class certificates were distributed as follows :—To Messrs. Veitch & Sons, Chelsea, for *Croton irregulare*, *C. maximum*, and *C. interruptum*, three valuable new stove shrubs, with variegated foliage ; also for *Dracæna Moorei*, a fine species with broad brownish-red leaves ; for *Selaginella Poulteri*, a slender hybrid Club Moss of garden origin ; for *Begonia Veitchii*, a showy dwarf hardy species from Peru, with orange-coloured flowers; and for two handsome varieties of *Gloxinia*, named *Madame*

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de Smet and *Vlaanderen*. To Messrs. Edwards & Son, Nuthall, for *Athyrium Filix-fœmina Edwardsii* and *Footii*; for *Scolopendrium vulgare Edwardsii*: and for *Polystichum angulare diversilobum Padleyi*. To Mr. W. Paul, Waltham Cross, for two beautiful *Phloxes*, with light-coloured flowers, named *Conqueror* and *Beautiful*, belonging to the summer-flowering group. To Mr. C. Turner, Slough, for *Rose Miss Ingram*, a very beautiful pale or flesh-coloured English variety, raised at Frogmore.

To the Royal Horticultural Society's Great Show, Bury St. Edmunds, held on July 15th, Mr. Turner of Slough, sent some seedling *Carnations*, for which first-class certificates were awarded—viz., *True Blue*, a very deep-coloured and smooth purple-flaked variety, an advance in point of colour on any flower in this division; and *Eccentric Jack*, a somewhat novel-looking scarlet bizarre, flowers full and smooth. A similar award was made to *Picotee Mrs. Fisher*, a very beautiful light red-edged variety. Mr. Turner also received a second-class certificate for *Carnation Anthony Dennis*, a very large crimson bizarre, with an unusual degree of colour in it. Any one fond of monstrosities in the floral world would have exulted over an immense *Fuchsia* with double corolla, named *Norfolk Giant*, shown by Mr. J. Hill, of Norwich. The flowers were of enormous size, but coarse-looking, and almost formless in consequence; though it was awarded a label of commendation as a decorative kind. Mr. Mann, of Brentwood, had a basket of his rich-looking *Zonal Pelargonium Lord Derby*, very showy indeed when small blooming plants were grouped in this way.

The Floral Committee meeting of August 6th, was famous for the production of Messrs. Jackman & Son's beautiful new varieties of *Clematis*. I scarcely know what can be more beautiful and useful in the way of hardy out-door climbers than these magnificent flowers. They exhibited a box of cut blooms, which contained the varieties they have already sent out—namely, *Jackmani*, *rubella*, and *Prince of Wales*: also blooms of *lanuginosa* and the pure white *lanuginosa candida*, and the following new kinds, all of which latter received first-class certificates:—*Lady Bovill*, pale greyish violet, a very striking, somewhat cupped, and very broad-petaled flower; *Mrs. Bateman*, light mauve, tinted with purple; and *Thomas Moore*, a very large flower of a reddish purple hue, with ray-like centre of white staminal filaments. These are the more valuable as they extend the range of colours hitherto presented by these grand creepers. Some splendid *Verbenas* came from Mr. C. J. Perry, of Birmingham, who is well known as one of the first raisers of the day. First-class certificates were awarded to *Miss Turner*, white with pale rose centre, a fine and striking flower; *J. C. Ward*, pale purple, with a pale centre, bold and fine; *Thomas Harris*, rich plum, with conspicuous white centre; *Hercules*, rich rosy carmine, with dark centre, both of fine quality; and to *G. P. Tye*, lighter in colour than Mrs. Turner, with a centre of a deeper colour, a flower of very fine form.

Fuchsia Golden Leaf, from Messrs. E. G. Henderson & Son, was awarded a first-class certificate for its excellent properties as a bedding kind, the variegation of the foliage being very bright, and the growth remarkably compact and dwarf. The same award was made to Messrs. Henderson for Variegated Zonal *Pelargonium Howarth Ashton*, a variety quite distinct and good, a good deal of crimson appearing on the zone; also for *Dianthus hybridus Napoleon III.*, a remarkably showy bright deep crimson variety. *Fuchsia albo-coccinea*, from the same, received a second-class certificate as a very novel form of this well-known flower, the corolla being dark violet crimson, the tube red, and the red sepals edged with white; it will make a

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pretty decorative plant. *Pelargonium reticulatum*, also from the same, received a label of commendation for the singular manner in which its leaves were veined with gold; it will no doubt be used as a kind to breed from. A very good *Pelargonium* of the Gold and Bronze-zoned section, of a distinct character and remarkably good in habit, named *Countess of Kellie*, was shown by Messrs. Downie, Laird, & Laing, and received a first-class certificate. It is said to bed well, which is saying a great deal for it in such trying weather. Another, in the same style, named *Kentish Hero*, was not nearly so distinct or good. Mr. G. Smith, Hornsey Road, obtained a first-class certificate for *Pelargonium Grand Duke*, a bright orange scarlet, with large massive trusses; and also for *Eclat*, a rosy crimson, showing a tint of blue.

Fuchsia Blue Boy, a very dwarf-growing and free-blooming double variety, was shown by Mr. G. Fry, of Lee, and awarded a label of commendation as a market and decorative plant; the tube and sepals are red, the corolla rich bluish purple, the blossoms abundant, and the habit refined. Mr. G. F. Wilson, Weybridge, received a first-class certificate for a Japanese Lily, which is supposed to be a fine variety of *L. Thunbergianum*; the flowers were deep orange, with a yellow band down each segment, and spotted with black; it produces a large and very handsome cluster of flowers. *Lobelia Blue Tom Thumb*, from Mr. Richard Dean, Ealing, was awarded a second-class certificate; it is a very dwarf erect-growing kind, and blooms profusely, the flowers being pale blue with white centre.

R. D.

OUR MONTHLY CHRONICLE.

THE FRUIT CROP OF 1867.—From a series of returns just published in the *Gardeners' Chronicle*, the following deductions may be drawn:—Apples are all but universally deficient, this result being due in most cases to the injury done to the blossoms or young fruits by spring frosts. Pears are generally below the average. Plums, with the exception of Damsons, which are reported as unusually abundant, are short in quantity. Strawberries have been on the whole good, though the blossoms suffered from May frosts in some localities. Cherries are about an average crop, but of comparatively indifferent quality. Peaches, Nectarines, and Apricots, the latter especially, are below the average. Figs are very scanty. Small Fruits, such as Currants and Gooseberries, have been unusually abundant, while Raspberries have suffered from the frosts. Nuts afford an average crop. Walnuts are all but a complete failure. It is found that generally fruits are deficient in flavour, owing doubtless to cold nights and absence of sunshine. In addition to the effects of frosts, the leaves have in many cases, been much injured by easterly winds, which have caused them to blister, and induced attacks of green fly, black fly, &c.

CONIFERS FROM FOREIGN SEEDS. — Mr. Austin, of Glasgow gives the following as the result of his experience as to the value of foreign compared with home-grown seeds of Scotch Fir and Larch:—"The plants from foreign seed push away ten days earlier than our 'home seedlings,' and are apt on that account to be destroyed by late spring frosts; while they are a fortnight later in autumn in maturing their growth, and consequently suffer from the effects of autumn frosts. I have not the least hesitation in saying that every one that can handle the pen should write down the arrant nonsense about the benefits of foreign seed."

NEW ROSES.—The Floral Committee has definitively adopted, for the Royal Horticultural Society, the very sensible and matter-of-fact rule that new Roses shall date from the year in which they are actually put in commerce—a rule for which we have already contended, as the only one which does not admit of being misunderstood, and which is that a Rose sent out in 1867, even though it be in October, is to be regarded as a new Rose of 1867, and not of 1868, the year in which blooms may be first exhibited in England. We therefore counsel all other Societies, as well as the compilers of schedules throughout the country, to adhere in future to this common sense resolution, which, once fairly established, will do away with many disputes.

LILIUM AURATUM. — Some very fine examples of this superb Lily have been observed

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during the present year. In the garden of Mr. MacLeod, Dalvey, near Forres, a plant has produced six stems from one root, the tallest being upwards of 8 feet high. One stem bears 19, one 18, one 16, one 8, one 9, and one 4 flowers, making in all 74, the flowers all fully expanded, and some of them measuring 10 inches across. A plant grown in the garden of Mr. A. Turner, Bowbridge, Leicester, has already won notoriety. This year it is grown in a 20-inch pot, and has four stems, the highest of which is 9 feet 6 inches high, and has nineteen flowers; the second is 8 feet 6 inches high, divided at top into two parts, on which there is the extraordinary number of sixty-six flowers; the other two stems are 4 feet and 2 feet 6 inches high respectively, and bear one flower each—making a total of eighty-seven flowers. The largest flower measures about 1 foot in diameter, and is on the highest stem. A still finer plant has been grown in the garden at Melchet Park, Romsey, where a bulb has produced two stems, 8½ feet high, one of them divided; these bear 100 flowers, while a small shoot from the base bears 4 more, making 104 flowers. At Finedon Hall, on a smaller plant, grown in a five-inch pot, a bloom is recorded as having measured exactly 14 inches in diameter.

Grouping of Zonal Pelargoniums.—Many suggestions have been made for grouping these plants, which now present such great variety that some classification is necessary. The most simple and intelligible, because well contrasted arrangement, is that proposed in the *Gardeners' Chronicle*, in which the term *Zonal* is preferred on account of the preponderance of zonate sorts, as a general designation for the whole series once called "Scarlet Geraniums." This subdivides into the following sections:—*Green Zonals* (Horseshoe), as in Madame Vaucher; *Golden Zonals* (Gold and Bronze Zonal), as in Beauty of Oulton; *Marbled Zonals*, as in Sheen Rival; *Variegated Zonals* (Tricolors, &c.), including the subsections of *Golden*, as in Mrs. Pollock, and *Silver* as in Italia Unita; *Variegated Marginates*, also including the subsections, *Golden* as in Golden Chain, and *Silver* as in Bijou; *Green Concolors*, as in Tom Thumb, and *Golden Concolors* as in Jason.

Manchester Exhibition of 1868.—The Manchester Botanical and Horticultural Society has decided to hold another great Exhibition next year, in its gardens at Old Trafford, during the Whitsun week, nearly the whole of the Guarantors of the National Show of the present year having consented to renew their Guarantee for another year. It is intended to offer about £1000 in prizes.

Gardeners' Examinations. — We have (page 25), mentioned the names of those young gardeners who gained Certificates at the 1866 examinations of the Society of Arts and Royal Horticultural Society, and we now supplement that information by recording the names of those who gained certificates at the examinations already held during the present year

Society of Arts, April.

	Floriculture.	Fruit and Vegetable Culture.
J. M. Henry, Richmond ..	2	2
J. C. Higgs, Southampton ..	3	1
A. Jamieson, Richmond ..	2	2
R. L. Keenan, Richmond ..	2	..
R. C. Kingston, Richmond ..	1	2
T. Paul, Slough..	3	3
W. P. Roberts, Bromley ..	1	..
G. Stanton, Slough	..	1
A. Stormont, Richmond ..	..	2
F. Thomson, Richmond ..	2	2

Royal Horticultural Society, July.

W. Spinks, Chiswick	1	2
B. Wynne, Chiswick	1	Ext. 2
W. Stewart, Chiswick.. ..	..	3
J. M'Ardle, Chiswick	2	..
F. Hardesty, Chiswick ..	2	3
F. M. Burbidge, Chiswick ..	1	2
J. Williamson, Battersea ..	2	..

Besides the foregoing Certificates, the following prizes were gained:—

J. C. Higgs: Soc. of Arts' 1st prize, Fr. and Veg. culture. R.H.S. 1st prize, ditto.

R. L. Keenan: R.H.S. 2nd prize, Botany.

R. C. Kingston: Soc. of Arts' 1st prize for Botany and for Floriculture. R.H.S. 1st prize for Botany and for Floriculture. *Gardeners' Chronicle* prize.

W. P. Roberts: Soc. of Arts' 2nd prize, Floriculture. R.H.S. 2nd prize, Floriculture.

G. Stanton: Soc. of Arts' 2nd prize, Fr. and Veg. culture. R.H.S. 2nd prize, Fr. and Veg. culture.

The preparation for these examinations is in itself so advantageous to young gardeners, that we urge upon them the importance of turning their attention seriously to the matter. The benefit resulting is far beyond the mere value of the Certificate obtained, though even that is not to be despised.

Nierembergia frutescens. — This very interesting new species was introduced to Europe about four years since, from the Andes of Chili, by M. Germain, an enthusiastic French naturalist, and having stood three winters at Bordeaux without any protection, will probably prove nearly, if not quite, hardy in this country. It is perfectly distinct from any species hitherto cultivated, or introduced. It attains a height of from 12 to 18 inches, when raised from seed and allowed to assume its natural form, but when struck from cuttings it will flower freely in a small state. Its habit is erect, but it only requires proper pinching in to make it as bushy as can be desired; it has neat linear foliage, and the flowers are white tinged with violet, the throat being yellow with deep violet rays, so

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that in colour they are not very dissimilar to those of N. filicaulis, though considerably larger.

Standard Gooseberry Trees.—In the villiage of Duffield, near Derby, there are four remarkable standard Gooseberry trees. The stems are fixed to an iron rod, and the heads trained on a circle of wire, beneath which the berries hang as thick as Grapes, and ripen beautifully. The trees are really fine productions of art. The tallest (Crown Bob) is 10 feet high, and 3 feet 10 inches across; the next (Crown Bob) 7 feet high and 3 feet across; the third (Victor) 5 feet high and 4 feet across; the fourth (Crown Bob) 4 feet high and 3 feet across.

Solanum galeatum. — This handsome purple-leaved species of Solanum has broad horizontally disposed foliage, of moderate dimensions only, and better adapted to resist high winds than that of S. robustum and some other species, and the vinous-purple tint of the under side of the leaf affords an agreeable contrast with the deep velvety green of the upper surface. It is one of the most beautiful of its family.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

At this season aim rather to perfect the growths already made than to encourage new growths, which it is now too late to mature; close up the houses early in the afternoon. *Orchids* still growing should not be checked till they have completed their growth, nor should they be stimulated to originate a new vegetation later than the diminishing light will be adequate to perfect; as light decreases gradually withdraw the shading.

GREENHOUSE.

Whilst the plants can for the most part be safely left out, the opportunity should be taken to thoroughly clean, whitewash, and paint the house, and put it in thorough repair. Plants out of doors should now be fully exposed to the sun's rays to ripen the wood; any that were not shifted in the spring may now be repotted, taking care that the balls are so thoroughly soaked, that water may pass uniformly throughout the whole soil. *Cinerarias* should have plenty of air night and morning, and sulphur must be applied in case of mildew; fumigate in case of aphides. *Pelargoniums* should be housed in good time; it is not well to leave them exposed too long to damp and cold. Towards the end of the month finally repot those intended for May exhibitions. Plants struck early should have their points pinched off, and they should make a good growth before the middle of January, so that they may have easier work in the spring. *Japan Lilies* should be shifted immediately they go to rest; rough peat, with sand, is suitable for them.

CONSERVATORY.

Climbers will require to be dressed where too rambling, taking care, however, not to cut away eligible portions that will produce late flowers, as in the case of *Passifloras*, *Combretums*, *Thunbergias*, *Mandevillas*, &c. Plenty of air should be admitted to harden the wood of the permanent inmates, and these should also be well exposed to light. *Heaths* should be kept apart from herbaceous plants, the exhalations from which latter tend to load and vitiate the atmosphere more than is consistent with the delicate organisation of the former. See that any *Chrysanthemums* which may be introduced, are kept well watered at the roots. Large specimens of *Salvia splendens* should be put out of doors for a few weeks to invigorate them.

FORCING.

Pine Apples.—Plant suckers and crowns; keep them shaded in a warm, moist atmosphere till they begin to form roots, and then place them near the light. Fruits that are swelling should have a bottom heat of 84°, and a top heat of 75° at night, and of from 80° to 90° by day. Gradually reduce the supply of moisture as the fruit ripens. Succession plants may have manure water, the quantity being limited in dull weather; give a little air, if possible, in the morning, and shut up early in the afternoon. *Vines.*—The crop in the earliest vineries will be cut, and the Vines exposed to the influence of sun and air. Late Grapes should be kept dry with a free circulation of air; occasionally fires will be beneficial, and in the case of Muscats absolutely necessary to ripen them perfectly. Remove berries as soon as the least symptom of decay can be perceived on them. Not only should the air of the house be kept dry for late Grapes, but the border should be protected from heavy rains, especially if the roots have been previously kept rather dry, for the spongioles will so rapidly absorb moisture on the first saturation of the soil, that the berries will be apt to burst in consequence, or to shank and decay. *Melons.*—Maintain a steady bottom heat, and keep the foliage moderately thin; but do not let it get too thick and then recklessly prune. Water with great moderation. *Cucumbers.*—Give the beds a surfacing of rich soil, and at the same time some additional heat. *Figs.*—Supply water sufficient to prevent any want of circulation from dryness; the temperature should gradually advance as ripening proceeds. *Mushrooms.*—Spawn will run freely in this month; it may be introduced when the heat of the beds is about 70°.

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When in bearing about 60° is a good temperature. *Kidney Beans.*—Sow in pots or boxes for a succession to the out-door crop.

KITCHEN GARDEN.

Plant out *Cabbages* from the principal autumn sowing in rows 2 feet apart each way, to remain for hearting; at the same time an intermediate row with the plants in it a foot apart should be planted—these to be used as Coleworts; for the same purpose a plant should be inserted between every two of the plants intended to remain for cabbaging. Plant out *Cauliflowers* from the August sowing. Hoe and thin *Spinach;* sow the Lettuce-leaved. Earth-up *Celery* when dry; the operation is best performed by putting the soil next the outside of the leaves by hand, keeping the hearts clear. A sprinkling of salt will keep Celery clear of insects. Sea sand answers well for blanching. Tie up *Endive* and *Lettuce* for blanching, and plant out successions. Water late *Peas* thoroughly, and mulch them next day. Take up and store *Potatos*, remembering that the certain consequence of exposing them to the light is the development of a bitter, poisonous principle. If Potatos are washed, the light acts with greater and more injurious effect, and there is no profit attached to this deterioration. If wet weather should set in, weeds become difficult to kill in autumn, especially if the hoe has not been thought necessary to be plied in dry weather; a weedless surface is soon hoed over, and thousands of seeds may exist in a state of incipient germination, which in a dry day could not survive the action of the hoe and rake; at the same time the particles of soil undergo a beneficial change from the action of the air or from fresh contact of different surfaces with the principles in the manure, all tending to set free the inorganic elements of the particles of the soil, and thus to supply all that vegetables want to render them succulent and well flavoured.

FRUIT GARDEN.

Peaches and *Nectarines* will now be ripening, and insects will persevere in their attacks, more especially on the ripest and best-flavoured. In order to annoy them in their lurking places, keep the hoe and rake moving frequently along the bottom of the walls. Earwigs are best entrapped in bean-stalks, as previously directed; wasps may be enticed in bottles with water sweetened with honey or sugar, or under a hand-glass baited with over-ripe fruit, another being placed over it, a hole in the top of the lower one forming an easy communication between the lower to the upper. *Wall Fruit* acquires a higher flavour by exposure to the direct rays of the sun than it does under glass, unless the season is unusually wet and sunless. When the fruit is gathered the trees should be gone over, and if any are crowded with succession shoots, some portion of the wood that has just borne, may be removed in order to benefit the succession shoots; but, unless for this reason, it is as well not to disturb the flow of sap until the leaves begin to fall. Leaves that shade the fruit should be turned aside. Where the fruit is all gathered let the foliage be kept well washed. *Pears*, *Apples*, and *Plums* that have pushed lateral shoots again should be stopped back to 2 inches. Clear off all runners of Strawberries not wanted, and with a knife cut the old outside leaves from the plants—they are almost inactive; but save the young ones, for these elaborate sap to make fresh roots and stems to support the crop of next year.

FLOWER GARDEN.

Secure tall-growing plants from wind; tie up *Dahlias;* propagate all kinds of *Bedding plants*. The sooner cuttings of *Pelargoniums* are put in the better. Plant rooted cuttings of *Phloxes* and other herbaceous plants, and also seedling *Hollyhocks*. Keep the *Walks* well rolled and the *Lawns* neatly mown; this is most evenly done by the machine, but if it should be done by the scythe circular scores, as if traced by chariot wheels, should not be exhibited. *Turf* may be laid in moist dull weather. As regards shrubs injured by the intense frost at the commencement of the year, it may now be determined whether they had better be left to recover as they best may, or be finally removed. In case of the latter decision being arrived at, evergreens may be planted towards the end of the month; water well, but by all means shelter effectually from the sun's rays till the sap is observed to be in motion, and the buds swell.

FLORISTS' FLOWERS.

Auriculas.—Keep clear of weeds and decayed foliage; refresh the surface of the soil, as this will encourage young roots. *Carnations and Picotees.*—Commence potting into small pots towards the end of the month; give plenty of air, otherwise they will become tender; beware of too much moisture. *Dahlias.*—In shading do not closely shade the blooms whilst they are in a young state, and secure them from rubbing against the foliage. *Chrysanthemums.*—These require plenty of water and liquid manure to produce fine blooms. *Hollyhocks.*—Cuttings of these strike readily in this month, and form good plants for next season. Seed should be gathered early in order that the flowering-spike may be cut off to encourage the root to throw up suckers; sow seed as soon as ripe. *Pansies.*—Plant out beds for blooming early in spring. Cuttings strike well in this month. Sow, but not later than first week of the month. *Pinks.*—The beds should be a little raised in the centre to throw off the wet. Pot some of the choice kinds for wintering under glass. *Tulips.*—The soil in which they are intended to bloom should be occasionally turned.

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Hippeastrum pardinum.

J N Fitch imp.

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[illegible]

J N Fitch imp.

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AMARYLLIS (HIPPEASTRUM) PARDINA.

WITH AN ILLUSTRATION.

THIS magnificent species of Amaryllis is one of the most striking novelties of the past season, perfectly distinct from all the species of Amaryllis previously known, and remarkable alike for its form, which is spreading, with scarcely any tube, so that the whole inner surface is displayed to view; and for its colouring, which reminds one of the spotted varieties of Calceolaria or of Tydæa, so closely are its perianth segments covered over with small dots, more or less irregularly confluent, of crimson red on a creamy yellow ground. So distinct a plant, combining as it does great beauty with its distinctness, cannot but be a valuable acquisition for our gardens.

The plant is a native of Peru, and was introduced from thence by the Messrs. Veitch & Sons, of Chelsea, through their fortunate collector, Mr. Pearce. It was exhibited in bloom at one of the meetings held during March of the present year, and was much and deservedly admired. Its merits were marked on this occasion by the award of first-class certificate, which was in every way deserved. Every grower of hothouse bulbs must secure it for his collection.

Our memoranda, taken from the blooming plant, describe the leaves as broadly linear, somewhat blunt, and about 1¼ inch broad. The flower-stem is robust, terete, and glaucous, supporting two flowers, which issue from a spathe of pallid oblong-lanceolate bracts, and are supported on pedicels of about 1½ inch long. The flowers are widely expanded—6 to 8 inches broad; the tube very short, and fringed within; the sepaline segments ovate oblong, apiculate, the petaline similar, but blunter, all greenish at the base of the tube, yellowish white upwards, and there spotted thickly with crimson dots; the stamens declinate, with red filaments and green anthers.

Being a native of Peru, this species will not require excessive heat; a cool stove treatment will be best for it. In other respects its culture will be similar to that of other stove Amaryllids, some of which were recently noticed in our pages.

M.

GARDEN ROSES.

"ROSES at the exhibitions and Roses in one's own garden are different things," said an old Rose amateur to me the other day; and so much is there in this remark, that having already given a paper on Roses at the exhibitions, I turn now to treat of "Garden Roses."

It is, perhaps, scarcely necessary to remark that those who admire Roses in all their native loveliness on bush or tree, should hardly choose their varieties from the cut specimens met with at the flower shows. Lovely they are, it is true—for when and where is the Rose not lovely?—but there is a "getting up," a weary look about them, which reminds one of the late hours of the ball-room rather than of the charming freshness and native simplicity of home life. And how can it be otherwise? When we consider that these Roses have been gathered from fifty to sixty hours before the public is admitted to see them, a part of which time they are packed in boxes almost immured from air and light, the wonder is that they look as fresh as they do. Then, again, the mere exhibitor of Roses runs too much after one idea—*form*, to be a safe guide when choosing for garden decoration. He

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does not heed sufficiently *habit* and *constitution*; and hence the symmetrical flower of the exhibition table is often the offspring of a weakly or shabby tree. We want good Roses; but we want also, for the purpose of general gardening, varieties of hardy constitution that will grow and flower well, and live to a good old age, without the petting and coaxing which so many of the modern varieties require. To choose Roses, unless exhibiting is the main object in view, one should see them in their rural homes, where the act of "getting up" is seldom practised, and pretty faces count only at their proper worth —should see them when newly opened by the breath of morn, and while still wet with the dews of heaven. Freshness is the crowning beauty, the indescribable and irresistible charm of the Queen of flowers, and this freshness is wanting in nine-tenths of the flowers met with on the exhibition tables. But there is more in the matter than this. The practised rosarian may gather from a solitary bloom, or a trio of blooms, whether the plant is of hardy or delicate constitution, whether the bearing is handsome or awkward, whether the flowers are generally or only occasionally fine, and the many other little points important though often overlooked in the hasty generalisations of this busy age, and which go to make up a good Rose—the practised rosarian, I say, may arrive pretty accurately at these facts from cut specimens, but woe be to the unpractised who decides and acts on such evidence. Daily experience confirms the opinion long entertained by the writer, that they who want Roses to decorate their gardens should choose from growing plants rather than from cut flowers. Acting on these views I lately, when visiting the Rose gardens in France, made notes of the best garden Roses, and these I have corrected by comparison with the collection growing here under my own eye.

First, I would observe that the amateur who wishes for a fine display of Roses in June and July, will lose much if he exclude from his list certain varieties of summer Roses. Among the *Moss* Roses there are:—Comtesse de Murinais (white), Gloire de Mousseuses (blush), Marie de Blois (lilac), the old-fashioned Moss and the Crested Moss (pink), Baron de Wassenaer (red), and Captain Ingram and Purpurea rubra (purple), all free, hardy, profuse, and beautiful. Of *Damask* Roses Madame Hardy and Madame Soetmans are still unsurpassed as white flowers, although rarely met with at the exhibitions. The varieties Félicité and La Séduisante compel us to retain the group *Alba*; these are improved varieties of the Maiden's Blush, and, although there are now Hybrid Perpetuals of similar character, they are so delicate as to be short-lived and scarcely manageable. Neither are the old *French* Roses to be hastily ignored, for in Œillet Parfait and Perle des Panachés we have the two best striped Roses (white striped with crimson and rose), that have yet appeared. Again, where effect is valued, where masses of bloom are desired, there are none comparable to the old *Hybrid Chinas* Charles Lawson, Chénédolé, Coupe d'Hébé, Juno, Madame Plantier, Paul Perras, and Paul Ricaut. Nor must we forget to include Harrisonii (Austrian), a plant of matchless beauty when covered with its golden globes in May and June. Yet how few of these ever put in an appearance at the Rose shows! If our new Hybrid Perpetuals produced the masses of bloom in summer which the above-mentioned kinds do, and continued to bloom constantly throughout the autumn, it would be well to take them in preference. But this is not the fact. Cultivators know well that the majority of these Hybrid Perpetuals produce fewer flowers in summer, and scarcely an equivalent in the later flowers. The difference is, perhaps, hardly appreciable in the sum total of flowers. It is this: The summer Roses pay

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you a good round sum down at once; the autumnals the same or a nearly similar sum by instalments. The latter are valuable because they give us flowers when

"The last Rose of summer is faded and gone;"

but it cannot be said that they produce the splendid effect of the summer Roses in the months of June and July. Let me not be misunderstood. I have no wish to depreciate the autumnals; all I contend for is, that each has its peculiar value, and the Rose garden is incomplete without a goodly portion of these summer-blooming kinds.

Having stated my views in reference to summer Roses, I now turn to the autumnals, among which the Hybrid Perpetuals and Tea-scented hold the highest rank alike as garden and show Roses, although the same kinds are not always equally suitable for both purposes. Among the *Hybrid Perpetuals* the following will be found to give very general satisfaction:—Alfred Colomb, Alphonse Damaizin, Anna Alexieff, Baron Adolphe Rothschild, Beauty of Waltham, Charles Lefebvre, Comtesse de Chabrillant, Dr. Andry, Duke of Wellington, Elizabeth Vigneron, Exposition de Brié, Fisher Holmes, François Louvat, Général d'Hautpoult, Général Jacqueminot, Glory of Waltham, Jean Rosenkrantz, John Hopper, Jules Margottin, Lady Suffield, La Brillante, La Duchesse de Morny, Leopold Hausburg, Lord Macaulay, Madame Alfred de Rougemont, Madame Charles Wood, Madame Rivers, Madame Victor Verdier, Maréchal Vaillant, Marguerite de St. Amand, Pierre Notting, Prince Camille de Rohan, Princess of Wales, Sénateur Vaisse, Souvenir de la Reine d'Angleterre, Triomphe des Français and Victor Verdier. Of *Bourbon Perpetuals*, Baron Gonella, Baronne Noirmont, Comtesse Barbantanne, Madame Charles Baltet, and Madame de Stella are excellent. Louis XIV., of the *Rose de Rosomène* group is also invaluable on account of the rich deep red globular flowers which it produces. Among the charming *Tea-scented* varieties the best are:—Alba Rosa, Bougère, Devoniensis, Eugénie Desgaches, Gloire de Dijon, Homer, Madame Damaizin, Madame Falcot, Madame Margottin, Madame Villermoz, Maréchal Niel, Narcisse, Niphetos, Rubens, Safrano, Sombreuil, and Souvenir d'un Ami. Of *Bourbons* I recommend Empress Eugénie, Souvenir de Malmaison, and Mrs. Bosanquet; while of *Noisettes*, Aimée Vibert, Céline Forestier, and Fellenberg are the most effective in their way.

The colours and general character of the above varieties may be readily ascertained by reference to any of the great Rose-growers' catalogues.

Paul's Nurseries, Waltham Cross, N. WILLIAM PAUL.

HINTS ON ENDIVE CULTURE.

IT will often be found that a want of success in keeping up a good supply of kitchen requisites will be the result of inattention to the minor details of culture and management, though it is possible that the general principles that should rule our practice may be well understood. For example, the general idea I wished to convey in my last paper on the culture of Lettuce (p. 196), was the absolute necessity of regular sowings at proper intervals; but, coupled with that, a similar amount of attention must be paid to the transplanting, and afterwards preparing for the table. Transplantation should always be attended to as soon as the plants are sufficiently large to be able to resist the attacks of snails, and before they get drawn up weakly; and blanching for the table (which is an operation

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usually performed by tying the leaves together with a string of matting), must only be done when the plants are perfectly dry, and should only be performed on a limited number at once. To save time, this operation is often performed in a very wholesale manner, a whole bed being tied up at once. This is all very well for a market gardener, who can cut a waggon-load in a day; but where only a certain number is required daily, it often happens that more than a third of the crop will rot off. The remedy is obvious—it is the minor detail of only tying up a few at a time.

The next most important crop for salad purposes, after Lettuce, is Endive, of which there are two types, the Curled, and the Batavian or Broad-leaved. These are so liable to run to seed if sown early, that unless Endive is in particular request it is not advisable to sow before the middle of June, after which, if the plants are thinned out timely, and kept from extreme drought, they will not run. Two more sowings may be made during the season, at intervals of about a month. The last one, in August, should be the largest sowing, as from it are to be derived the main crops for the winter supply, and also for planting in sheltered places to stand through the winter.

The seed may be sown either broadcast or in drills, the latter being generally preferred on account of the facility which it affords for thinning, which should always be done in time to prevent drawing. The first thinning should be made when the plants are about an inch in height, and whether in drills or broadcast they should be left at 8 inches apart. It is the neglect of this first thinning which is one of the minor details overlooked, for in five cases out of six we shall find that thinning the seed-bed is never practised until the plants are required for transplanting, and the consequence is that from being drawn up weakly, the plants have to make an entirely new start from the heart leaves, and a week or ten days are lost in the growth of the plants. On the contrary, when they are timely thinned, and again for transplanting into beds, as soon as they are found to cover the seed-bed, they will become stocky and well rooted; and, if carefully watered when planted, will start into growth at once. A portion should always be left in the seed-bed at from 12 to 14 inches apart, to come in earlier than those which have been transplanted from it.

Endive, like most other kitchen-garden crops, revels in good fat ground, and with regard to the sowing in June and July such may be allowed it, but with the later sowing in August this must be taken with a reservation, because a fat soil brings up a succulent herbage, and such herbage is peculiarly liable to injury from frost. The August sowing is supposed to supply the months of December, January, and February at least, and from the smallest plants I have carried them on into March and the end of April; but from experience I find that the soil for these plants must not be so strong as to excite a succulent and tender growth. At all seasons it is advisable that Endive should be planted deeply—that is to say, the crown of the plant should be at least 2 inches below the surface level. To facilitate the operation, use a large sharp-pointed dibble, so that there may be a sort of basin formed round the crown of the plant for the reception of water, which must always be applied at planting time, though the seasons are rare in which it is required afterwards. Towards the end of September plantations should be made at the base of south walls. I generally plant Endive and Bath Cos or Hardy Green Lettuces alternately, and I find them to come in very useful; the Lettuce especially comes in about ten days or a fortnight before those in the more open quarters.

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The plants from the June sowing will be ready for use by the end of September; those from the July sowing at the end of October; and it is advisable that a good supply of these latter should be tied up when very dry, to blanch, and on the approach of frost to be lifted and stored in frames or pits for an early winter supply. For a later supply the earliest plants from the August sowing must be looked to, and full advantage taken of every chance afforded by dry weather to tie them up, either for covering from frost in the bed, or for lifting to store away.

The Curled varieties are generally preferred for salads, and the Broad-leaved for stewing; but the latter when well blanched are very crisp and tender for salads, and by some are preferred to the Curled, being less bitter. Amongst the Curled varieties, that exhibited before the Fruit Committee of the Royal Horticultural Society last season, appears likely to be one of the best.

Redleaf. JOHN COX.

THE POTATO DISEASE.

THE Potatos in this part are very badly diseased. I do not recollect having seen, since 1846, the late Potatos in gardens worse diseased than they are this season. The disease did not manifest itself here to any extent until the middle of August, so that the early kinds escaped with little or no loss.

Mona's Pride and Rivers's Royal Ash-leaved were good crops and fine in quality. Myatt's Prolific was a heavy crop everywhere, and fine. Haigh's Kidney was fine, and here they escaped the disease much better than last year. Prince of Wales Kidney was very fine, but very badly diseased. Milky White was very much diseased. Dalmahoy and Daintree's Seedling nearly all diseased. All the late sorts badly diseased, very few sound tubers. The Potatos in the field are also, I regret to say, going very much with the disease. The best and freest from disease that I know of were treated as follows:—The manure was spread on the ground last autumn, and then ploughed in, and the sets were planted rather earlier than usual in spring. These Potatos are a fine crop, and up to the present time (18th of September), very little diseased. The situation is rather high, and the subsoil gravel, so that there has been no excess of moisture in the land. In an adjoining field, which is lower and a dead flat, with heavier soil and a more retentive bottom, Potatos last year were very badly diseased. Potatos in the markets here at present are already a shilling the weight of 21 lbs., a rather unusually high price at this season of the year.

Fortunately for the public, the corn crops, which are now being harvested in good condition, are considerably above an average in this part of the country. Should flour keep at a moderate price, the loss of the Potato crop will not be so severely felt as it was last year.

Stourton. M. SAUL.

TOADS IN IRELAND.

ALTHOUGH toads are met with at a considerable distance from water, they were all originally bred in it from spawn deposited in the spring. From the absence of toads in Ireland, it has been ignorantly supposed that there is some peculiar quality in the soil which is hurtful to harmless and useful reptiles. I advert to this for the sake of noticing that there

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seem to have been similar local notions concerning noxious animals even in this country. Sir J. Browne says, "It is a true and remarkable thing, that whereas Islip and Blitchinton, in Oxonshire, are not distant above two miles, and noe river between, yet noe man living remembers a snake or adder found alive in Blitchinton (which abounds with frogs and toads), and yet they be brought from Islip, or other parties, into that towne, they dye as venomous things die on Irish earthe brought by ship." The author seems not to have known that adders can swim, nor the fact that these excepted, the Irish may have as many venomous creatures as we have, though not mentioned in the "fog of fable," for the venom of wasps and honey bees is sometimes as fatal as that of the viper. Besides, except the vulture, those alluded to are harmless—snakes, toads, vultures, moles, or mole crickets. Carr, in his "Tour in Ireland," mentions these, and also the erroneous belief of no frogs having been found in Ireland before the landing of King William; but he observes that frogs are stated in ancient accounts of noxious animals to have been extirpated from Ireland. It would be useless to dwell on that old legend, the origin of which appears to be the damp nature of the Irish climate.

Though toads are bred in water, they cannot live long in it. They prefer dry places, where they find proper food—beetles, ants, and many other winged insects injurious to cultivation. Therefore they are more useful than frogs that thrive in damp places, and whose chief diet consists of worms and water insects, or at least of those found in uncultivated places, where they also find shelter from the rays of the sun.

Cossey. J. Wighton.

DOUBLE PYRETHRUMS.

Any attempt to chronicle the improvements made during the past few years among the flowers employed for garden decoration would be incomplete without some allusion to the greatly improved forms of the Double Pyrethrum. Only a few years ago a Double Pyrethrum of the section now under notice, was a thing unknown. But that patient enterprise that works out so many astonishing revolutions in the world of horticulture has been applied with great success to this flower, and we have now among us a valuable summer-flowering plant for the open ground—one thoroughly hardy, being altogether an out-door flower, and at the same time thoroughly valuable for the embellishment of shrubbery and mixed borders.

The history of the improvement of this flower is just the simple process that has worked such happy results in the case of other popular flowers. Received from the Continent by Mr. John Salter, of Hammersmith, in a form suggestive of a much higher order of development, it was at once taken in hand, and by careful seeding year by year, semi-double flowers became resolved into fully double blooms; increased size both of floret and flower-head followed in the wake of fuller substance, and with these came that coveted variation which always gladdens the heart of the florist—a breaking away into new colours, or combinations of colour, even to a much larger degree than was at first reasonably expected. And so, bringing up the "record of progress" to the present year, the rich and varying beauty of some of these flowers really surprises one who has inspected them, seeing what a comparatively short space of time has been devoted to perfecting them. They are certainly a valuable addition to our hardy herbaceous plants. That they grow somewhat lanky is really no tenable objection

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against them, as they can easily be tied up to stakes in common with many other herbaceous plants. But it is not improbable that this objection will soon be altogether removed, inasmuch as some very dwarf-growing varieties are now showing themselves in the seedling-beds, in the same way as has been observed among the Antirrhinums for instance, and there is no loss of any good qualities in these dwarf-growing kinds, while their dwarfness is a great gain. They remain in bloom for a considerable time, commencing early in July, if not earlier, and they are even now (the second week in September), in full bloom, as the plants throw out a succession of lateral shoots that become floriferous.

Then some single-flowered varieties of the Pyrethrum are also undergoing a collateral improvement, though they only bear about the same relationship to the double-flowered kinds that the single Anemone-flowered Chrysanthemums do to the splendid and full double flowers. Still, they are moving along in the march of improvement, increasing year by year in size of flower, in breadth and roundness of floret, and in diversity of colour. They are easily propagated; this is another recommendation in their favour. They can be multiplied by taking off cuttings either in the autumn or early in the spring; these should be put into a bed made ready for them in a cold frame, or else be put out on a shady border, and protected by a hand-glass. A good rich soil is all that is required to induce them to root. Planting out for blooming can be done either in the autumn or the early spring. If the ground intended to receive them be low and wet, put off the planting-out till the spring, and house the plants in a cold frame through the winter; but, as a rule, planting can be safely done in the autumn. As, however, the slugs have a fine appreciation of the foliage as an article of food, they must be looked after, or the plants will soon betray the ravages of these herbivorous *gourmands* of the garden.

I have endeavoured to arrange under certain heads of colour some of the showiest and best varieties. Under the head of Carmine and Red may be put the showiest and brightest colours. Of these the following can be well recommended:—*Emile Lecomine*, a fine continental variety, colour deep rosy carmine with bronze centre; *Modèle*, a fine shade of carmine red, but with a tendency to come single; *Carminatum plenum*, dark carmine; *Fulgens plenissimum*, dark red, a large and handsome flower; *Imbricatum plenum*, bright rosy carmine, the flowers of great size and showy; *Rose Perfection*, a dark but pleasing shade of rosy carmine; and *Prince of Wales*, dark carmine shaded with bright red, a striking shade of colour, flowers large and full.

Rosy Lilac and Purple shades will well represent the next section. A distinct purple hue is evidently soon to be obtained, but at present it is somewhat mixed with rose. The most noticeable under this head are *Miss Plinkie* (Salter), new of 1867, pale rosy lilac, with a light centre, the flowers large and full, and belonging to what Mr. Salter denominates the Ranunculus-flowered section, inasmuch as the florets forming the centre of the head are flat instead of being quilled, as is ordinarily the case; *Lischen*, another continental variety, rosy purple with paler centre; *Madame Calot*, deep rosy purple, a very effective shade of colour; and *Barral*, a very fine and double crimson purple flower, one of the best of the dark colours.

Of shades of Rose there are Salter's *Alfred Salter*, vivid rose, a fine flower; *Iveryanum*, bright rose, the flowers large and full (this variety is somewhat dwarf in its habit); *Nemesis*, dark glowing rose, showy and fine; *Paul Journu*, soft rose with light centre, another dwarf-growing variety; *Pompon Rose*, a small but good flower of a lively dark rose shade; and

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Wilhelm Kramper, a tall-growing variety, but of a good shade of colour—namely, lively dark rose.

Pink shades are found in the following varieties:—*Nobilissimum* (Salter), new of 1867, a very large flower, having broad guard florets of a bright pink hue with a white centre, one of the most distinct kinds, and very attractive; *Yolande*, rosy pink, flowers very double, and dwarf-growing; *Carneum plenum*, pinkish blush, flower large and full; *Fascination*, a very pleasing shade of deep pink; *Gustave Heitz*, a continental variety of a pale rosy pink shade with bronzy centre, a fine flower, but a somewhat tall grower; *Lady Blanche*, blush, with a distinct rosy tint, very fine; *Miss Talfourd*, bright rosy pink, a pretty and pleasing shade of colour; and *Mrs. Dix*, blush, shaded with pale rose, and very fine.

There is a clearly perceptible presence of something akin to Peach colour in a few of these flowers, particularly in *Ariane*, rosy peach, the centre lighter, a pretty and distinct flower; *Cerito*, clear rosy peach with sulphur centre, a fine flower; and *Pet*, another pretty flower of bright rosy peach shade.

Shades of Yellow are as yet confined to yellowish sulphur and buff. Of these the best are *Luteum plenum* (Salter), new of 1867, pale yellow, but deeper in colour in the centre, free-blooming, and dwarf-growing; *Nancy*, a continental variety, in colour creamy sulphur; and *Sulphureum*, sulphur, with a deeper colour in the centre of the flower, distinct and good.

Of White flowers there are *Annie Holborn*, white, with a deep blush centre; *Belle Gabrielle*, pure white, with delicate peach centre, a fine flower; *Ne Plus Ultra*, blush white, a fine and bold flower; and *Princess Alexandra*, white, with a slight tint of cream, a very fine flower of great depth and substance, and dwarf-growing.

The following are the best of the single flowers:—*Giganteum rubrum*, chestnut red, flowers large and bold; *Kleinholtz*, bright crimson, fine and distinct; *Mons*, glowing crimson, a fine shade of colour, flowers large and fine; *Prince Alfred*, purplish crimson, flowers large and bold; and *Sparkler*, bright reddish crimson, flowers very showy, and a fine shade of colour.

Quo.

DENDROBIUM NOBILE AND SPECIOSUM.

The latter of these, *Dendrobium speciosum*, does not appear to have met with the amount of cultural success amongst us, which from its great merits it is deserving of. A plant with eight or ten stout pseudobulbs, having each a crown of leaves fine as it is capable of producing—not such as are generally met with—is in itself a noble object, whose beauty is greatly enhanced, however, when decorated with an array of spikes sufficiently lengthy to need that the pot should be elevated for their display. The cause of this want of greater success must not be sought after in the absence of heat. Dendrobium speciosum is in reality a plant from a more temperate zone than some superficial observers may be aware of. It was first introduced from New Holland; and New Holland plants, it may not be beside the subject to state, have an aversion to too much heat. Generally they will contend to the death against it. Let me advise, therefore, a more rational treatment to those who are anxious to grow and to flower this plant freely.

A warm corner in a greenhouse or conservatory, quite away from draught, and not too much shaded, will suit it well in a general way. In such a

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position it may stand from November till late in the following April, with just sufficient water afforded to ensure a slight amount of latent moisture throughout the entire ball. This is best supplied by simply dipping the whole exterior surface of the pot containing the plant into a tub or vessel containing tepid water, three or four times during the above period. From the latter date commence gradually to moisten the ball throughout by actual waterings, sponging the leaves also, which will, doubtless, start it into active growth in due time, at which period it may be removed to the cooler part of an intermediate-house, still keeping it away from anything in the way of draughts, slightly shading it, and occasionally watering it copiously overhead. When it has finished preceptibly to enlarge in growth in this position, it may be again removed to a more open situation, such as an airy vinery wherein the crop, having become ripened, requires in consequence a dry atmosphere. Here it will mature effectively the growth it has previously made, and at the proper date it should again be returned to its general winter quarters. In the following March, or early in April, it may be expected to show for flower. Bear in mind, however, that if through adverse treatment this plant, which it would be difficult to kill outright, with any semblance of cultural attention, has dwindled "less by degrees" down to a mere pigmy as compared with what it should be, it will take more than one, and perhaps two seasons, to induce it to flower freely. With treatment such as the above, which I can personally vouch for, I have flowered a plant of D. speciosum, which, grown in a 16-sized pot, produced sixteen flower-spikes upon ten pseudobulbs, two of which carried three spikes each, averaging 12 to 14 inches in length, and beautifully fragrant. Few have any idea of the real beauty of this species, even though it be not brightly coloured, who have not seen it thus freely flowered. One other remark I would offer. In potting the plant, use an open porous compost, formed, as is customary, by mixing fibrous peat, charcoal, sphagnum, and potsherds well together, these, however, being first reduced to smaller particles; mix them together, crock less, yet efficiently, and pot them as firmly as the nature of these things will admit. Little other inducement will the roots then need to ramble luxuriantly therein, and throw up in consequence robust pseudobulbs, bearing upon their crowns leaves equally broad and lengthy as themselves—a true test of luxuriance in Dendrobium speciosum.

Dendrobium nobile requires also a little more study than is usual of its native habitat, and its attendant climatic influences, in order to flower it as freely as it is capable of being flowered. A native of China, it delights in a moist, humid, and warm atmosphere during active growth—a season when, perhaps, it would be difficult to overdeluge the plant with water at a genial temperature. In our practice here we seldom err. But do we imitate the more temperate Chinese winter in our general practice during the season of rest? I hold not. Encased within our necessarily over-humid winter stoves at a uniformly maximum temperature, comparatively speaking, these plants (which need a cool and an entire season of rest, surrounded by as dry and buoyant an atmosphere as possible), are forced, as it is, into a state of semi-rest only—forced to retain their foliage green and intact. Thus does the whole plant exist adversely. How should we apply these facts, then? So soon as the plants have ceased actively to grow (which is readily seen when they exhibit at the tips of the young growths no further signs of progression), withhold water, save at distant intervals, during a month or six weeks, and after that, wholly. Remove them first for a week into the warmest, driest position in the house, and thence into the sunniest part of

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a cool greenhouse or vinery, not subjected to draughts, where they are to become well inured to a plentiful supply of air, which, however, they must not feel directly. Here they are to remain for some months. The only other essential requisite is that no actual moisture be allowed to rest upon their whole surface. In due season flower-buds will protrude if a growth capable of their production has been formed. When this is observed they must be reintroduced into a warmer house, and treated for the due display of their blossoms. It will soon be seen what an incentive of future growth the past complete rest will have been. The hardening process, in like manner, will cause them to flower most abundantly.

Digswell. WILLIAM EARLEY.

NEW GARDEN PLANTS.

AMONGST recent novelties in the Orchid family may be mentioned *Dendrobium Bullerianum* (Bot. Mag., t. 5652), a pretty delicate-flowered species, first bloomed by Mr. Wentworth Buller, after whom it has been named. It is a Moulmein plant, introduced by Messrs. Low & Co., and is said to be of very easy culture, flowering in the spring. The stems are erectish and striated, the leaves ovate-lanceolate acute, and the flowers which follow the leaves, in clusters of two or three, white, faintly tipped with purple, and with a large yellow blotch in the centre of the lip. "In structure it is, perhaps, most nearly allied to D. crepidatum, from which the form of the lip abundantly distinguishes it; while in the size, colouring, and general effect of its flowers, it somewhat resembles the otherwise very different D. Devonianum," but is infinitely less beautiful. It has been called *D. gratiosissimum* in gardens. The very remarkable *Epidendrum cnemidophorum*, (Bot. Mag., t. 5656), has been bloomed during the past summer at Oulton Park, and proves to be a fine showy species. Its stately stems grow from 4 to 6 feet high, and are pendent at top from the weight of the large nodding raceme of flowers. The latter are long-stalked, pale on the outside, and on the inside yellowish mottled with rich brown, the lip and column being of a creamy white tinted with rose. The large size of the individual flowers, and the bulk of the entire racemes, together with the stately habit of the plant, render it one of the most desirable of its family—one, moreover, which, coming from an elevation of 7000 feet in Guatemala, is found to thrive best in gardens under cool treatment. Another new species of the same genus, having an ornamental character, is *Epidendrum Brasavolæ* (Bot. Mag., t. 5664), another Guatemalan species, flowered by Mr. Bateman, a plant allied in habit to E. prismatocarpum, but remarkably distinct in colour, the sepals being of a rich buff or yellowish brown, the lip straw-coloured at the base, and mauve-coloured at the tip. Its singular colour renders it attractive.

Among stove shrubs a very interesting addition to our ornamental-leaved plants was made by the introduction of *Acalypha tricolor*, from New Caledonia. It is a remarkably distinct plant, of shrubby habit, producing large ovate acuminate leaves, which are irregularly mottled and blotched with coppery red and crimson, or sometimes a good deal suffused with coppery red, a colour quite distinct from that of any other plant in cultivation, and which contrasts finely with other ornaments of the hothouse. The plant belongs to the Urticaceous order, and is the *Caturus hispidus* of some botanists. It was obtained by Mr. J. G. Veitch during his visit to

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the South Sea Islands, and has lately been sent out by the Messrs. Veitch and Sons, to whom we are indebted for the accompanying illustration.

Dr. Hooker figures a rather pretty form of *Dracæna*, called *surculosa*, var. *maculata* (Bot. Mag., t. 5662), sent to Kew from West Tropical Africa by M. Gustav Mann. It is a stove shrub of 6 to 8 feet in height, with slender stems, copiously augmented by means of surculi (or suckers), from the roots; the leaves are scattered or somewhat whorled, acuminately oblong-lanceolate, green with yellow spots; and the stems terminate in a lax globose corymb of slender-tubed pale yellowish flowers.

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A very interesting example of the genus Agave, a group of plants which, from their remarkable and strikingly effective forms, are making their way slowly but surely in popular favour, is the *Agave xylinacantha*, recently figured (Bot. Mag., t. 5660). It is a stemless plant, with the thick succulent leaves spreading on all sides, and bearing on their margins flat, whitish, variously lobed or furcate, or sometimes simple, spinous processes, which are often hooked; it is these woody-looking spines that have suggested the name. The scape is simple, erect, 9 or 10 feet high, terminating in an attenuated but crowded raceme 3 to 4 feet long, of small greenish flowers with projecting yellow anthers.

Erodium macradenium (Bot. Mag., t. 5665), recently introduced from the Pyrenees by Messrs. Backhouse & Son, of York, a pretty cut-leaved plant, with lilac black-spotted Pelargonium-like flowers, appears to be the same as the plant long since cultivated (and, doubtless, subsequently lost to our gardens), under the name of E. glandulosum. It is an elegant herbaceous perennial.

M.

ROOTS FROM VINE STEMS.

Before I observed Mr. Cramb's remarks at p. 174 concerning the production of roots from Vine stems, I thought there was no doubt but such roots were the mere effects of moist heat, especially during dull weather; and this not only coincides with his remarks on the subject, but I think also with the opinion of practical Vine-growers. If the opinion of theorists is correct, that the fault proceeds from weakness of the roots underground, then only weak Vines would produce roots from their stems, whereas they are less liable to do so than strong ones, though both may be under the same treatment. I need observe that the roots are produced only from the under sides of the stems shaded from the effects of the sun, and they soon die off in a drier atmosphere.

The same may be said of healthy Melons, Cucumbers, and plants of many other kinds, whose stems often produce roots or fibres during dull weather. Some of my Vines are upwards of thirty years old, with stems thicker than one's wrist, and they annually produce roots—more or less, according to the warm humidity of the house, as freely as Vine cuttings do whilst lying amongst warm leaves.

Cossey Park. J. Wighton.

CONCERNING CONIFERS.

The planting of Conifers is every year extending over the country. They are not now confined to the pleasure ground, nor to a special place set apart for them called a Pinetum, but are being largely planted over the parks and plantations of many of the larger estates. These are the proper places for all the larger-growing species.

In some of the places where Conifers were largely planted some years ago, one of the great mistakes committed was the planting of them too closely together. In most situations where the plants have not been properly thinned, the greater number of the specimens are spoiled for want of room to develope themselves. Large-growing Conifers have generally been planted too closely together, or too near walks and other things that prevent their developing themselves.

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The difficulty in procuring seeds of some of the species was so great a few years ago, that grafting was largely practised to meet the demand for them. Unfortunately, many of the trees planted some years ago, either through being grafted or the roots becoming corkscrewed by being kept in small pots, have done badly and caused disappointment. These matters are now generally well understood, and there is now no difficulty in getting fine seedling plants, well prepared for transplanting, with the almost certainty of the most satisfactory results, if planted in suitable places, and properly attended to.

The two great evils that Conifers suffer from are, an excess of moisture at the roots, and planting in low confined situations. Unfortunately Conifers do not always show the effects of these evils. In dry seasons and mild winters the plants do pretty well. It is only when there is a heavy rainfall in the autumn, and this is followed by a severe winter, that Conifers planted in badly drained land and confined situations suffer to any extent, but the results are then often very disastrous, as was the case in many places last year. Plants that are perfectly hardy are then set down as quite tender. Hardy Conifers when planted in badly drained land or in confined places will suffer seriously from a few degrees of frost, while the very same kinds will, when planted in thoroughly well-drained land and open airy situations, stand many degrees of frost without sustaining the slightest injury. When Conifers are planted in badly drained land and in confined places the wood very rarely gets properly matured, and in consequence it suffers from a few degrees of frost. Excess of moisture at the roots in winter causes the spongelets to perish, and the plant is in consequence weakened, and less able to stand frost. From long practical observation I have very little doubt that excess of moisture at the roots, is one of the chief causes why so many hardy Conifers suffer so much injury in severe winters.

Of the several thousands of Conifers planted here in the park, the pleasure ground, and woods, not one of those in exposed situations, and where the subsoil is of a dry porous nature, suffered in the slightest degree from the frost of last winter and spring. A few only, in low places, or where from the nature of the ground the surface water could not pass off freely, suffered slightly.

I am perfectly convinced if more attention was paid to the drainage of the land, and to planting in open airy situations where the wood would get ripened, we should not hear so often of such wholesale destruction of Conifers in severe winters as we did in that of 1866. In our moist climate the land for Conifers cannot be too dry in winter ,if we wish to save the fine roots from perishing; nor can the situation be too open and airy, provided it is sheltered from the fury of the destructive west winds.

We are now on the eve of the planting season, and it would be well if these facts were not only borne in mind, but acted upon by intending planters. I am sure those who do so, will have the pleasure of witnessing satisfactory results.

Though plantations are the proper places for all the larger-growing species, I am no great advocate for planting young Conifers in old woods—not, however, through a dread of root-fungus, but from the difficulty of getting spaces sufficiently open and airy, where the sun can shine on the young plants all day long. If tall trees in any way shade young Conifers they will grow up thin and weakly.

I am a great advocate for planting Conifers in young plantations, and for planting them at good distances apart, so that they may have ample

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room to develope themselves. The young plants afford the Conifers all necessary shelter without obstructing the sunshine.

When planted in young plantations the young trees should be kept well thinned out as they advance in growth, so that the Conifers may have a fair chance of developing themselves.

Stourton. M. Saul.

MADRESFIELD COURT GRAPE.

This splendid new Grape was exhibited to the meeting of the Fruit Committee of the Royal Horticultural Society held on the 20th of August, and was most deservedly awarded a first-class certificate. The bunches exhibited weighed from 1½ to 2 lbs. each; they were beautifully and regularly grown, and quite of the same form as those of the Muscat of Alexandria—*i. e.*, long and tapering, and well shouldered. The berries are large, longish oval, like those of the Muscat, jet black, and covered with a fine bloom like that on the fruit of Black Alicante. The stalk of the bunch is rather fine, erect, and of a reddish purple; that of the berry is stout and warted. The skin is tough and membranous; the flesh is firm and very juicy, rich and excellent, and has a distinct Muscat flavour. The leaves, which are bristly, deeply lobed, and serrated, have reddish stalks and midribs, like those of the Esperione.

It is a seedling, and was raised by Mr. Cox, gardener at Madresfield Court, Great Malvern, who has furnished the following information respecting it:—"The Grape in question was raised some five years ago, and was the only one of a quantity of seedlings which, after fruiting, I considered worth saving. The parents were Muscat of Alexandria and Black Alicante, crossed both ways. I am therefore in doubt as to which kind produced the seed from which the present seedling was raised. The plant is of robust growth, and short-jointed, and the eye is prominent, and rather more pointed than that of the Muscat. The fruit sets as freely as that of the Black Hamburgh, and ripens a fortnight later than that variety, and a like period earlier than that of the Muscat of Alexandria."

Judging by specimens of this seedling which have been exhibited during the past two seasons, it promises to be one of the finest Grapes yet introduced. For flavour it is nearly if not quite equal to the Muscat of Alexandria; in appearance, size, colour, and form, it is all that can be desired; and there is a freeness about the bunch, like that which belongs to the Black Hamburgh, that betokens a fine constitution, and capability of being grown to a large size. The stout stalks of the berry, and its tough leathery skin, are also sure indications of its good keeping qualities. Of all Grapes in cultivation, Mrs. Pince's Black Muscat comes nearest to it.

A. F. B.

AN EPITOME OF PANSY CULTURE.

To grow the Pansy successfully for exhibition purposes, the course of treatment briefly sketched out in the following remarks, and which can be filled up according to circumstances, should be followed.

In the month of July, and again in October, select healthy cuttings, and plant them in a cool part of the garden. A north border is the best situation for them, and they should be put under glass, in order to keep heavy rains from rotting them; but this covering should not be a close

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frame or pit—hand-glasses do exceedingly well if they are removed for a short time night and morning. Light soil must be used, and both the cuttings, and the young plants after they have rooted, are to be kept clear of all dead foliage.

If required for very early bloom, or to be exhibited in pots, the strongest young plants should be selected and potted into four-inch pots; they are to be placed in a cold frame for the purpose of keeping off any excess of rain, but they must have all the air possible. In December they are to be repotted into seven-inch pots, using rich soil. The plants generally make several leading shoots, but four or five are sufficient, and from these the small branches or side shoots should be removed as they grow, in order to throw strength into the principal shoots, by which means large blooms will be ensured.

Similar treatment will be successful for out-of-door culture. A rich free soil, and a cool but airy place, are among the principal requisites, and with these must be combined abundance of light, so that crowding may be avoided. Unless this is attended to, vigorous growth and large blooms will not be obtained.

C. T.

GOODYERA MACRANTHA, A HARDY VARIEGATED ORCHID.

If not quite equal in beauty of colour and marking to the Anæctochils of our hothouses, we have at least in this pretty Japanese plant one which

is suggestive of those rare hothouse gems, and one which has enough of intrinsic beauty to make it a welcome addition to our collections. It has been introduced from Japan in a living state to the St. Petersburgh Botanic

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Garden by M. Maximowicz, and the same, or a very similar plant, was brought to this country by Mr. J. G. Veitch on his return from Japan.

The plant is a dwarf herb, with short stems, and approximate leaves, narrowing into the petiole, which is dilated, so as to sheath the stem by its base. The form of the leaves is ovate, acute, the margin being of a clear pale yellow, and the central part barred with bright green reticulations on a deep olive green ground. The flowers are upwards of an inch long, of a pale pink colour, hairy on the outside, with linear erect sepals and petals, and a lip of the same form, but shorter and recurved. It is related to the Georchis biflora of Lindley, and M. Maximowicz regards it as forming with that plant a very natural section of the genus Goodyera.

For garden purposes it will be very welcome, because, with much of the beauty of the Anæctochils, it is far more manageable than they. Indeed, M. Regel states that it succeeds well in a cool house if placed in a light situation, protected from the influence of the sun by means of shading.

In Japan it is only met with in cultivation, and brings a high price to the Japanese dealers. M. Regel suspects that this and another species, *G. velutina*, something in the way of G. discolor, both come from the southern islands of Japan. Their free growth, easy culture, and nicely marked leaves render them both desirable for general cultivation. It is recommended that they should be grown in flat pots, planted in freshly gathered sphagnum, mixed with a little loamy earth and sand, and kept rather elevated above the edge of the pot.

M.

THE FINCHLEY VINE.

This Vine, the history of which is a study, and the progress of which speaks most emphatically in behalf of the extension system where circumstances favour its adoption, is so remarkable an instance of success in Grape-growing, that, although it has been frequently noticed by the horticultural press, it deserves a special record in our pages. We find so circumstantial an account of it in the new edition of Mr. Thomson's excellent treatise on the Vine, that we quote his description, all the more readily, since it would appear that Mr. Thomson was himself in some degree instrumental in inducing Mr. Kay to plant it. The account given is as follows :—

"In the year 1838 I became acquainted with the late Mr. Kay, of Finchley, near London, and up to the date of his melancholy death, I continued to discuss with him, verbally and by letter, every question that bore on the culture of the Vine. He always maintained the great importance of what he called 'carrying a large amount of foliage on the Vine' as the only sure way of keeping up its stamina, and acted on this himself. I used to reply, that practically it was not expedient to allow more than two leaves to grow beyond the bunch. This, with the sub-laterals stopped at one leaf, I considered sufficient, and pointed to the example of the Oak Hill Vines, near Barnet, then and for twenty years so ably managed by Mr. Davis, who produced splendid crops of Grapes, ripe in March and April, for many years in succession from the same Vines, and which he pruned to one eye, and left only one leaf beyond the bunch. I thought the system I adopted, of leaving two leaves, sufficient; Mr. Kay thought otherwise, and left from four to five.

"Carrying his ideas still farther, he said he believed that better would be the plan of planting only one Vine in a large house. This I urged him to do, and in 1855 he built a span-roofed house 89 feet long, 16 feet wide, and 9 feet 6 inches in height to the apex. In this house he planted a single Black Hamburgh Vine in March, 1856, the roots all outside, and the border prepared 89 feet in length by 15 broad. Beyond this border are the borders of other houses, giving it scope for its roots little if at all under a quarter of an acre. The Vine is trained with a leading stem from the centre of the north side wall up to the apex, and down to the south wall, for the house runs east and west. From this main stem five laterals are trained towards each end of the house—one at the apex, the others equidistant between

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the apex and the walls. The last time I saw it in company with Mr. Kay was in 1862. I saw it again in 1864, when it had a full crop of excellent Grapes, weighing, as I have since learned, 476 lbs. In 1865 it bore 400 lbs of Grapes; in 1866, three hundred bunches, some of them weighing 5 lbs. It took seven years to furnish the house with bearing wood. The girth of the stem where it enters the house is at this date, May 1867, 14 inches. Mr. Osborne, an old pupil of Mr. Kay's, has ably carried out his preceptor's mode of managing this noble Vine; and I trust it may long remain in robust health, a fitting monument to one who had few equals as an enthusiastic cultivator of the Vine, and one who stands alone as having built a large house, and planted it with a single Vine, to test a theory which some writers of the present day are starting as a new one."

LABELLING FRUIT TREES.

Finding the lead labels on the fruit walls here, not so legible as could be desired, especially when reading them from the walks, I have tried rubbing into the letters two coats of white lead or paint, and they now can be read quite plainly. To some this may be no information; but others who may not have tried it, will find it the best and most permanent mode of labelling the fruit trees on their walls and borders. Some years ago I had the leads used here, and the printing materials, made by the firm of Lingham Brothers, Ironmongers, Birmingham. They likewise furnished galvanised iron sockets for fixing the stamped leads in for the borders. The leads are cut in this shape, being about 4 inches in length, and 2½ inches in breadth, and are packed in packets of fifty each. The dots in the flanges at the sides show where they are nailed to the walls. When fixed in the iron sockets, these flanges are bent round, and clenched on the other side. The labels then for the borders are in this shape.

When stamping the leads with the letters, I use a block of iron made for the leads to fit in, and over them is placed a thin iron plate with three open lines wherein to stamp the names on the leads. When printing the leads, I have the steel pieces which contain the letters on the tops, all fixed alphabetically in a tin box with a small square hole for each, and by being able to pounce on the letter required, the printing is done systematically, and with rapidity. There has been no end of labels tried for naming fruit trees in the open air; but whether made of heart of oak, porcelain, or cast iron, they have all failed of being permanent. With lead labels, however, the case is different; and when the letters are brought out by using the white paint now and then, little more can be desired for the purpose. The way the painting is done here, is to rub over the letters twice with a little white lead, and then take a rough piece of cloth or sacking to wipe the paint off the face of the label, the doing which forces the paint deeper into the letters.

Welbeck. William Tillery.

NOVELTIES AT FLOWER SHOWS, &c.

A very fine lot of *Hollyhocks* was shown before the Floral Committee, on August 20th, by Mr. Chater, Saffron Walden, and two fine new seedlings by the Rev. E. Hawke, Gainsborough. A line of about a dozen spikes of flowers, from Mr. Chater, some of them new kinds, shown for the first time, were an exhibition in themselves. First-class certificates were awarded to the following:—*Alba superba* (Chater), a large pure white flower, of good sub-

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stance; *Ruby Queen* (Hawke), brilliant ruby, a fine variety; and *Gem* (Hawke), pale salmony red, also of fine quality. A second-class certificate was awarded to *Walden Queen* (Chater), with large and full flowers of a delicate flesh colour. *Queen of Yellows* (Chater), has a good hue of colour, but the guard petals are too large and pale in colour. *Whitby King* (Chater), is similar to, but not so good as Gem above noted; and *Midnight* (Chater), is a glossy dark maroon, almost black flower, but wanting substance.

Some seedling *Dahlias* were shown by Messrs. Hopkins, Pope, and Keynes. The former had *Excellent*, orange maroon, a small but promising flower; Mr. Pope had *Ruth*, a heavy rosy purple-edged variety; and of the new flowers shown by Mr. Keynes two received second-class certificates—namely, *Mrs. Dodds* and *Caroline Tetterell*, both a good deal in the same way, and yet distinct enough from each other—both light ground varieties, edged with rosy lilac, the blooms of good size, full, and with good centres. The following were also new seedling kinds, which no doubt Mr. Keynes will send again:—*Miss Turner*, a variety tipped with rosy purple; *Royal Purple*, rosy purple; *Lady Derby*, a dark purple, tipped with white; *Snowball*, white; *Emma Newman*, pale primrose; *Duke of Edinburgh*, a handsome shade of rosy violet; and the *Hon. Mr. Bouverie*, orange buff. A Perpetual *Picotee*, named *Ascot Yellow*, from Mr. Standish, was a large and showy yellow-ground flower, edged with rosy red, the habit vigorous and free-flowering; it was awarded a first-class certificate. *Verbena The Cure*, from Mr. Eckford, Coleshill, Berks, got a similar award; it is a large and bold flower, the colour rosy purple, with a lively bright crimson centre, and promises to make an excellent exhibition variety.

Ixora crocata rutilans, from Messrs. E. G. Henderson & Son, well deserved the first-class certificate it received; it is of a deeper and much better colour than *I. crocata*, and has a very compact truss of flowers. *I. crocata elegans* is also a new kind, but not so good as the foregoing. Two very handsome *Palms*, from Mr. Bull, were awarded first-class certificates—viz., *Calamus adspersus* and *C. javanica*; the latter has the smaller, but yet the handsomer foliage. The same award was made to Mr. Bull for *Alsophila Leichardtiana*, from Australia, with shining green fronds, which promises to make a handsome tree Fern. A hybrid *Nosegay Pelargonium*, with large and handsome trusses of lively crimson flowers, named *Magnum Bonum*, came from Messrs. Downie, Laird, & Laing; the individual flowers, however, were small and the petals narrow. Some good yearling *Zonal Pelargoniums* were shown by Mr. Bull, generally having stout and smooth flowers, and somewhat promising; and Mr. Eckford had two very promising *Variegated Zonal Pelargoniums*—namely, *Lady Folkestone*, a golden, and *Miss Annie*, a silver variety.

Dahlias formed the chief feature of the novelties brought before the Floral Committee on September 5th. First-class certificates were awarded to *Hebe*, a light ground flower, very evenly tipped with rosy lilac, outline and substance good, and altogether first-class, from Mr. G. Rawlings, Romford; also to *Yellow Perfection*, rich golden yellow, a large flower of fine quality, from Mr. Turner, Slough; to *Sir Greville Smythe*, bright orange red, the centre suffused with purple; to *Viceroy of Egypt*, a fancy variety, a large but somewhat flat flower, suffused rosy lilac with crimson stripes; to *Leopardess*, also a fancy, a flower of similar build, ground colour lilac, spotted and striped with bright crimson; and to *Lady Derby*, a very pleasing flower that will be very useful for exhibition purposes, pale ground, heavily tipped with rosy lilac, all from Mr. Keynes, Salisbury. Second-class certificates were

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awarded to *Flag of Truce*, white, slightly suffused and striped with pale lilac, and to *Chameleon*, yellowish buff ground, tipped with reddish orange, both from Mr. G. Wheeler, Warminster. *Mrs. Dorling* (Turner), pale fawn, edged with deep rosy lilac, and *Wonderful* (Keynes), a Fancy variety, pale lilac ground with purple stripe, very much in the way of *Viceroy of Egypt*, also received a similar award. A good many other seedling Dahlias were produced, but generally of indifferent quality as shown, though suggestive of their being hereafter seen in better condition.

Some seedling Verbenas were shown by Mr. Eckford, of Coleshill Gardens, the most striking of the collection being *Bravo*, cerise, fading to pale rose, and lemon eye, pip fine, smooth and stout—awarded a second-class certificate; and *Lord Derby*, brilliant deep orange scarlet with lemon eye, a fine hue of colour, but the pips cup far too much.

Euonymus japonicus flavescens, from Mr. William Paul, is a very novel form of this hardy shrub, a large portion of the shoots being entirely yellow. If this can be perpetuated it will be a great acquisition. A special certificate was awarded to Mr. James Anderson, Meadow Bank, Glasgow, for a collection of splendid cut Orchids, some of them, notably *Odontoglossum grande*, *Cattleya Aclandiæ*, and some species of *Oncidium*.

At the Crystal Palace, on September 10th, it was altogether a show of cut flowers and fruit, Dahlias, Asters, Hollyhocks, Gladioli, and Verbenas being the principal features in the first part of the Show. On this occasion first-class certificates were awarded to the following *Dahlias*:—*Buttercup* (Turner), a very fine shade of soft pure yellow, fine substance and outline; *Master Johnny* (Turner), a fancy flower, quite novel in colour, though a little imperfect in the centre; *Adonis* (Turner), a very beautiful pale ground flower, suffused and slightly edged with lilac; *Mrs. Dorling* (Turner); *Hebe* (Rawlings); *Yellow Boy* (Keynes), a yellow self, rather deeper in colour than Turner's *Buttercup*, a fine and bold flower; *Rosy Queen* (Keynes), clear rosy violet, somewhat ribbed in the petals, but of a good colour; *Mrs. Dodds* (Keynes), a lilac-suffused flower with slight lilac edging, soft and pleasing; and *Leopardess* (Keynes), a fancy flower. Second-class certificates were awarded to *Chameleon* (Keynes), a fancy variety, pale lilac, spotted and flaked with crimson; and to *High Sheriff* (Turner), glossy velvety crimson, a small flower with a full high centre, and good outline.

Second-class certificates were awarded to the following seedling *Gladioli* from Messrs. Kelway & Son, Langport:—*Robinson's Seedling*, pale pink, flaked with rosy pink, and lilac pencillings on a white throat; *Refulgens*, rosy, feathered with deep crimson, and white throat marked with violet; *Snowflake*, pure white, the lemon throat pencilled with violet; and *Charles Turner*, light salmon pink, the white throat very conspicuous. The spikes were all large, the flowers of good form, and promising to be very effective exhibition kinds. A similar award was made to Messrs. Minchin & Sons, Hook-Norton, Oxon, for two seedling *Hollyhocks*—viz., *The Rev. Charles Garrett*, dullish claret crimson, a full but flattish flower; and *Alypius*, salmon rose, large, full, and of fine quality. Mr. C. J. Perry, of Birmingham, brought a lot of *Verbenas*, among them several of his fine seedlings of the present year. The names of those awarded first-class certificates are now given, but they will be arranged and described on a future occasion. The certificated flowers were *J. C. Ward*; *Miss Turner*, very fine; *Hercules*, *Interesting*, and *G. P. Tye*, the latter of the finest quality. Mr. Knight, Battle, Sussex, received the same award for *Verbena Constance*, a quantity of flowers from the open

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ground being shown. It is of a deep scarlet colour with lemon eye, and keeps its colour well; the pips are large and of fine quality, and judging from its character as seen on this occasion, it will make a fine bedder.

One of the special features of this Show was the competition in the class for twenty-four varieties of cut blooms of stove and greenhouse plants. The first prize was awarded to Mr. J. Woodward, Ewell, for a box of flowers of such fine quality, so fresh, so tastefully and accurately arranged, that too much cannot be said in its favour. The contents of the box comprised such fine things as *Pancratium speciosum*, *Vallota purpurea*, *Allamanda grandiflora*, *A. Hendersoni*, *Lapageria rosea*, *Peristeria elata*, *Pleroma elegans*, *Oncidium flexuosum*, &c. Each bunch of flowers was a bouquet in itself.

The meeting of the Floral Committee at South Kensington, on the 17th of September, had a greater significance than usual attaching to it, in consequence of the show of Variegated Zonal Pelargoniums being held in connection with it. New *Dahlias* were in strong force on this occasion, though a great many of those shown have already been noticed. The following were flowers not previously noticed:—*Rosamond* (Turner), clear pinkish lilac, a very pleasing colour, and a good exhibition flower; *Memorandum* (Church), light ground tipped with rosy lilac, very pretty, and of full substance; and *President* (Legge), a superb rich crimson flower of very fine quality. These were awarded first-class certificates. *Gipsy Queen* (Hopkins), heavily tipped with crimson on a pale ground, a telling exhibition flower; *Chameleon* (G. Wheeler), a rosy purple-tipped flower on a yellowish buff ground, very pleasing and useful-looking; *Rosy Circle* G. Wheeler), clear vivid rose, the tips of the petals round the flower so heavily suffused as to form a band of purple, a very showy flower, wanting outline; *Billy Button* (Turner), a fancy flower, flaked with dark crimson on a dull lilac ground; *Vedette* (Turner), a rosy purple self, small, but of fine outline; *Princess Mary of Cambridge* (Thorneycroft), a large white self, looking as if it will be very useful for exhibiting; and *Golden King* (Rawlings), a small, handsome bright yellow flower,, were all awarded second-class certificates. Mr. Knight's *Verbena Constance* also received a first-class certificate.

Cupressus Lawsoniana ochroleuca, from Mr. W. Paul, is a very handsome golden-foliaged Conifer, in the praise of which too much cannot be said. It may be said to be "bathed in gold," so regularly and thoroughly is the yellow colour diffused over the plant. It was awarded a first-class certificate, as was *Alocasia Jenningsii*, from Messrs. Veitch & Sons, a very handsome and striking species, having radiating sections of a dark hue, almost black, on a very bright leaf ground. Mr. Bull got first-class certificates for two handsome Palms, *Oreodoxa regia* and *Astrocaryum niveum*; also for a shining-leaved handsome tree Fern, *Cyathea canaliculata*; and for *Araucaria elegans*, from New Caledonia, said to be the smallest of all the species. A very promising *Ivy-leaved Pelargonium*, named *Duke of Edinburgh*, but in bad condition, was shown by Mr. H. Cannell, Woolwich. It has a broad margin of white to the leaves, and appeared to be a cross between the Ivy-leaved and Mangles' Variegated; it will, no doubt, be seen again better developed. *Tradescantia repens variegata*, from Mr. W. Bull, is a neat-looking variegated trailing plant when the variegation is good. The great difficulty lies in perpetuating it, as the plants are so much disposed to run back to the plain form. The variegated form can only be perpetuated by taking off the shoots so marked and striking them as cuttings.

R. D.

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OUR MONTHLY CHRONICLE.

Large Cluster of Grapes.—Mr. Fowler, gardener to the Earl of Stair, Castle Kennedy, produced at a recent show in Glasgow, the most extraordinary bunch of Grapes, for size and weight, that has been exhibited in modern times. It all but rivalled the famous bunch of Speechly at Welbeck. It weighed 17 lbs. 2½ ozs., and was of the White Nice variety. The same grower had enormous Black Alicante, with berries the size of Victoria Hamburgh, and bunches compact and pyramidal to a fault. Trebbiano, too, was the largest and best formed bunch of the kind probably ever exhibited. Mr. Fowler also produced a bunch of the Duchess of Buccleuch variety, much larger both in cluster and berry than any of this variety before exhibited. The size of bunch which Mr. Fowler induces in all the sorts under his cultural care is something wonderful, and if he does not at all times show them quite up to the finishing stroke in point of colour, it need not be wondered at.

International Congress.—Mr. R. Warner proposes that an International or Universal Botanical and Horticultural Association should be formed, which shall hold Congresses annually in different capital cities, such as may offer to receive it, in the same way as our Agricultural Society and the British Association meet at different towns in Great Britain; and that every member of the Association shall pay a certain sum per annum, to pay expenses of printing and distributing the Proceedings. He suggests that the head-quarters should be in England, and adds that the Linnean Society should undertake it; but that if the Society will not, then it should be an independent Association.

Propagation of Variegated Plants from Root-cuttings.—The result of this process is very frequently that the plants so raised return to their original green-leaved state. Mr. Meehan noticed some few years since, that root-cuttings of Cornus mascula variegata produced the normal form, while plants raised from layers did not show any tendency to revert to their original. Continuing his experiments, he found that this was the case with most variegated plants, so that he expected to establish it is a general rule; but in the case of Pyrus japonica variegata, the roots were found to produce the same variegated form as the parent.

Glaucous Cedar of Goa.—There is a glaucous variety of the Cedar of Goa at Verrières, the residence of Madame Vilmorin, which for gracefulness is unrivalled. It is one of the most exquisite pleasure-ground trees in existence, drooping most gracefully, and of a lively silvery tone.

Second Fruiting of Musa.—In the Oxford Botanic Garden a plant of Musa with a stem about 12 feet high, which had produced a bunch of fruit last year (1866), has produced from the same stem a second bunch of fruit this summer. The second bunch is 9 or 12 inches above the previous one, and is on the opposite side of the stem. As it is rare for a plant of this genus to fruit a second time, the fact is worth recording.

Grafting.—Dr. Regel describes a new method of grafting, as practised by Herr Freundlich, one of the Russian court gardeners, with remarkable success. Instead of taking the scions from the previous year's wood, with the bud just beginning to swell, the still soft growing lateral shoots are selected when from half to 1½ inch long, and either bark or tongue-grafted, care being taken not to draw the ligature too tight, as they swell much more rapidly than hardwood scions. Success, he says, is certain, if care be taken that the sap of the stock is in motion at the time the operation is performed. He recommends this mode as superior to all others, especially for hard-wooded trees, such as Quercus, Fagus, &c., which are usually difficult to propagate from the old wood. New Roses and other plants, which it is desirable to increase as rapidly as possible, may also be advantageously worked in the same manner.

Oleander-growing in France.—Oleanders are grown about Paris in sandy soil in small pots, say 48s, which they of course soon fill with roots. They are plunged all the summer in the open air, and grown at all other seasons near the glass in those low houses so much in vogue in Parisian gardens. They are allowed to rise with an undivided stem for about 3 inches, and then break off into several little stems. There should be no difficulty in growthem wherever there is a sunny shelf in the greenhouse, by securing a clean, while discouraging a soft or luxuriant growth.

Chasselas Grapes.—A large collection of these has been examined this season at Chiswick. They were fruited together in pots—the only way in which such a large number could be brought under comparison. The following are the results:—The earliest variety is *Chasselas Hâtif de Tonnein*, a small, round, somewhat pointed, greenish white Grape, transparent, sweet, and agreeable. *Gelbe Muscatellier*, resembles this in appearance, but is somewhat later. *Pitmaston White Cluster* is very much like Gelbe Muscatellier. *Early White Malvasia*, synonymous with Grove End Sweetwater, Keinzheimer blanc précoce, and Burchardt's Amber Cluster, is a most excellent early, small, yellowish white Grape, juicy, sweet, and very agreeable.

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Royal Muscadine is a very excellent variety for pot-culture, and free-bearing. The following are synonymes of it—viz., Chasselas Napoléon, Queen Victoria, Chasselas de Montauban à grains transparents, Chasselas de Fontainebleau, and Brutiano. *Chasselas Croquant* is somewhat firmer in the flesh. *Chasselas de Florence* is the same, only having a few rose-coloured berries in the bunch. *Golden Bordeaux* resembles the Royal Muscadine, but is smaller, and not so good. *Ciotat* is a Royal Muscadine, with Parsley-cut leaves. *Muscat St. Laurent* is a very early Grape; the bunches are small, the berries also small but sweet, with a muscat flavour. Muscat Ottonell and Oliver's are synonymous with it. *Le Mamélon* resembles it, but has much more deeply-cut leaves. *Chasselas Rose de Falloux* is of the same flavour and character as Royal Muscadine, with bright rose-coloured berries. *Muscat rouge*, Chasselas rouge, Chasselas de Negrepont, and Fondante rose are synonymes, a little paler than Chasselas Rose de Falloux. *Stillwell's Sweetwater* is a very good variety of Sweetwater, with large berries, which sets freely. *Diamant Traube* is a very fine Grape, bunches and berries large, of a clear transparency; flesh firm, juicy, and rich. *Cabral* resembles this very much, but is inferior to it. *Reeves' Muscadine* is a very strong-growing variety, berries small, beautifully yellow, rich, and pleasant. *Chasselas Musqué* is well known. Chasselas Musqué de Nantes, Muscat blanc de Berkheim, and Muscat Regnier are synonymes of it. *Cranford Muscat* is the same in flavour and appearance, but has the reputation of not cracking. *Duchess of Buccleuch* is a very long tapering bunch, with small round berries, in flavour like the Chasselas Musqué. *Muscat Trovéren* is a fine Grape, bunches large, berries medium-sized, in flavour like Chasselas Musqué; it does not crack. *Foster's White Seedling* is a fine Grape, bunches large, berries large, clear, and beautiful oval; pleasant flavour. *Chasselas de Jerusalem* is Black Hamburgh. *Milhaud du Pradel* is synonymous with Œillade Noir musqué and Œillade Noir précoce; a very excellent variety, berries large, oval, black, muscat flavour. *Muscat Noir d'Angers* is synonymous with Muscat Noir d'Eisenstadt, a good form of Black Frontignan. *Muscat Noir d'Hongrie* is a small black Grape, with a very rich muscat flavour, the highest flavour of all the varieties grown. *Chasselas Duhamel* is a small, round, black Grape, not of high flavour. A *Grape* received from Sir P. De Malpas Grey Egerton is a small, oval, black variety, of no particular value. *No.* 65 (Veitch), is a small worthless variety of Persian Grape, reddish purple. *Madeleine Royale* is a fine variety, larger than the Royal Muscadine, ovate, clear, rich, and excellent.

Preserving Pelargoniums during Winter.—Mr. Chauncey, of Lancaster, relates his experience in the preservation of Pelargoniums during the winter, as follows:—"At the end of autumn I laid in a trench at one corner of my garden, for the purpose of preservation during the winter, fifty or more Tom Thumb Pelargoniums. The trench was about 12 inches deep; the plants were laid in and covered with straw, the earth being heaped over them, so as to form a covering 12 or 14 inches thick, and shaped like a roof, to allow the water to run off. Towards the end of April, the plants were dug out of the beds, and though the winter had been very severe, they were found to be all alive and healthy, except two, which had rotted.

Polemonium coeruleum variegatum.—This is strongly recommended, and well indeed it deserves to be, as a beautiful fern-like, feathery, silvery plant for the flower garden. As Nature tones down her most glowing colours, and enhances their beauty a thousand-fold by contact of cool foliage, and contrast of calm neutral tints, so should we reverently follow her in our garden grounds, and strive to invite and retain the admiring eye, instead of startling, dazzling, and wearying it, by a continuous and intolerable glare. "Not a leaf to be seen," has been the unwise boast of many a florist in praise of some gorgeous specimen; but Nature is justified of her children, and never makes a maneless horse. We want foliage in all our landscapes, gardens, and plants; and for contrast with our glowing Pelargoniums, Verbenas, and Calceolarias, as well as with our dark foliage plants, such as Coleus, Amaranthus, Iresine, and Perilla, I know of nothing more effective or more charming than this variegated Polemonium. Thus saith the well-known "S. R. H.;" and, Mr. David Thomson adds, that the plant should be taken up and housed in a cool place in winter, or the variegation will run out.

Mignonette Dying.—Complaints having been made of Mignonette plants dying off mysteriously, Mr. Fleming has recommended that the ground should be rammed hard, as a preventive. It is the same in pot culture; the soil should be made as hard as the pots will bear. "The finest plant I have seen," he adds, "is now growing in the middle of an old Pear wall, and hangs down to a length of 3 feet, the seed having accidentally been blown into a crevice by the wind when I was sowing the border. It cannot receive any moisture, and is even more healthy than the border plants."

OBITUARY.

Mr. Thomas Dawson, lately deceased, was for many years head gardener to Earl Cowper, at Panshanger, Herts. He will be long remembered by gardeners as an exhibitor of forced fruits, and occasionally of pot Roses, in the cultivation of both of which he was

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most successful. He had been long subject to an internal affection, under the influence of which his naturally robust constitution at last gave way, after he had nearly reached the age of three score and ten years. He was buried on August 24th, in the pretty parish churchyard of Hertingfordbury.

Mr. William Chapman, whose death we regret to have to record, was for fifteen years gardener at Eaton Hall, Rutland, and latterly has occupied the position of chief gardener to H.H. Halim Pacha, at Shobrah, Egypt. His death took place on September 3rd, in the fiftieth year of his age.

CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

The temperature may range from 65° to 70° at night; in the day time give air when the temperature reaches 80°, so that the thermometer may never much exceed 90° even by sun heat. *Justicias*, *Aphelandras*, *Gesneras*, *Allamandas*, and such like, will now be coming into bloom, and with an admixture of choice foliaged plants a good display may be kept up for a considerable time, affording a strong contrast with dreary winter and its effects out of doors. *Orchids.*—These will generally be at rest, but some Lælias and Cattleyas will be coming into bloom; their expansion should be assisted by a moderate amount of moisture and heat, but when in flower they should be kept rather dry.

GREENHOUSE.

Cold nights may be expected to occur now at any time, and, therefore due preparation should be made, so that all plants may be secured at the shortest possible notice. Accordingly, plants introduced from pits and frames to the greenhouse, and now getting out of flower, should be removed. In arranging the plants to be introduced, let the hard-wooded and narrow-leaved be kept together, as they may thus be placed closer than if mixed with broad-leaved and herbaceous ones. Give air night and day so long as the thermometer out of doors does not fall below 45°. To dry the air of the house, let it be warmed so as to be above the temperature of the external air, and with the circulation induced the superfluous moisture will be swept away. *Heaths* and other plants liable to suffer from damp and mould should have a very circulation of air, and the atmosphere of the house ought to be occasionally impregnated with flowers of sulphur. Before taking the plants to their winter quarters they should be carefully cleaned, and the surface of the soil in the pots should be removed and replaced with fresh; at the same time the pots ought to be washed and made perfectly clean, not only for the sake of appearance, but also for the health of the plants. *Camellias* and *Azaleas* should now be prepared for their winter quarters by placing them in a pit or some suitable compartment where they can be fumigated several times at intervals of two days; successive broods of insects, if any exist, will thus stand little chance of escaping destruction. Let them be afterwards strongly syringed. *Cinerarias* do not require much heat at this season; a cool pit or frame, placing them near the glass, is suitable for them till winter sets in. In the course of the month they will require a shift, using light rich soil. *Pelargoniums* should be encouraged to make growth during this and the ensuing month, and then allowed to go to rest in December; but whilst growing they should not be crowded, but kept in a house dry and well aired, but not too cold. Repot and stop as may be seen necessary.

CONSERVATORY.

Give air in abundance whilst the weather continues favourable. *Climbers* should be pruned of all superfluous shoots, in order that they may be trained or tied up, so as to admit of more light to plants that must now be taken in from out of doors. Previously any that are in tubs should be examined to see that they are in a proper state as regards drainage. The borders and paths should be kept thoroughly clean. Fire heat will only be necessary to dry up moisture till frosts set in, which, however, it should be borne in mind, is sometimes the case towards the end of the month. Pot *Bulbs* for winter and spring flowering.

PITS AND FRAMES.

Rooted cuttings that are accommodated in these should have plenty of air, so that they may not make a rapid weakly growth. Keep the young stock near the glass, and see that the pots are well drained. The plants should have no more pot room than can be well filled with roots before winter, this will ensure complete drainage and prevent damping off.

FORCING.

Vines.—Grapes for late vineries are generally selected from late varieties, and these contain, even when coloured, a good deal of acidity in their native climate, till gradually converted into rich saccharine quality by the rays of a hot sun reflected from a baked soil, from which heat is radiated night and day; the Grapes, however, are in a medium so dry and airy that they neither shank nor rot, but are rather transformed into raisins. The conditions under which Grapes become such need not, if it were possible, be carried so far

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with fruit intended for the table; still some fire heat at night, with sufficient air to ripen them thoroughly, and a dry atmosphere to prevent them from decay, should be afforded. The temperature may be 60° by night and 70° by day, or 80° by sun heat. The Vines in the earliest vinery, the leaves having dropped, may be pruned and the house prepared for commencing gradual heating next month, if very early Grapes are desired. *Pine Apples.*—Place fruiting plants at the warmest end of the house; temperature 70° at night, and 85° by day. Succession plants 60° at night, not exceeding 70° by day. *Figs.* — Water sparingly at the root, but keep the air of the house dry. *Peaches and Nectarines.*—When all the leaves are cleaned off, the trees may be pruned. *Cucumbers and Melons.*—For the former maintain a bottom heat of about 85°, and a moist atmospheric temperature of about 65° to 70°; keep the sashes clean, and the plants near the glass. *Mushrooms.*—A close moist atmosphere is required, and a temperature of 60°. Keep up moisture by vapour, but do not apply water directly to the beds. A little fresh air for a short time every day is considered beneficial.

KITCHEN GARDEN.

Take up *Potatos*, but expose them to the light for as short a time as possible; they should be immediately stored in narrow ridges. Plant *Garlic* and *Shallots* in shallow drills a foot apart. On wet days, inspect *Onions* that have been stored, and remove any that are likely to spoil. Gather *Tomatos;* they will improve in colour and ripening by placing them on wickerwork in a frame or vinery. Plant *Lettuces* from an autumn sowing, on to a warm border.

FRUIT GARDEN.

Apples and *Pears* will be fit for gathering in this month. There are some kinds that may be seen hanging, even when the leaves have nearly dropped; for instance, the Glou Morceau on walls, and sometimes the Marie Louise from late blossoms, will acquire a large size, and then come into use long past their usual season, and prove consequently more valuable. Late Pears, more especially, should be gathered with the greatest care, taking hold of them by the stalk. Fruit keeps best in fruit-rooms that are maintained at a steady temperature, not much colder than the external air at one time and at another much warmer. When the fruit is cold and the air comparatively warm, the moisture in the latter is condensed on the colder fruit, and this becomes wet, and continues to be so till it becomes as warm as the air, when the deposition of moisture is evaporated, and the fruit is again dry till a change of temperature renders the air warmer than the fruit, when condensation again takes place. This alternate wetting and drying greatly affects the keeping of the fruit; and it is not to be wondered at, for similar vicissitudes will tell on the hardest timber. Coe's Golden Drop and Ickworth Impératrice *Plums* may be laid in a dry place for a week, and then wrapped in tissue paper and placed in shallow boxes in a dry airy room, where they will keep for weeks or months. Collect soil for fruit-tree borders. The planting of fruit trees may be commenced as soon as the leaves have fallen. Make fresh plantations of *Raspberries*.

FLOWER GARDEN.

Whilst there is still sufficient heat in the ground to start fresh roots before winter, plant *Evergreens*, and also, as soon as their leaves have dropped, deciduous trees and shrubs. Plant *Bulbs*, *Wallflowers* and other *Biennial* and *Perennial* plants, except some fibrous-rooted kinds that are apt to be thrown out of ground in winter, in the case of which it is better to defer planting till early spring. Whilst it can be well recollected what plants were grown in the various spots throughout the grounds, note them down in order that the same kinds of plants may not be planted in succession, unless for some special reason, and in that case fresh soil had better be introduced, or otherwise recourse should be had to trenching and manure, so that no plant may be put in soil previously exhausted of the elements which it specially appropriates. The approach of winter will render it vain to hope for floral beauty in this department, but the ground may be maintained in good keeping, the lawn may be kept smooth, the edgings neat, and the walks well rolled, so that at all times in fair weather they may be walked upon with pleasure; whilst the smooth green turf, verdant frequently throughout the winter, affords a pleasing prospect. The walks should be kept with a regular but gentle curve just sufficient to throw off the water as it falls, and thus to ensure a dry footing immediately the rain is over. This will be the case if the walk is curved, so that its middle is higher than the sides by about one-sixtieth of the breadth of the walk.

FLORISTS' FLOWERS.

Auriculas.—Keep in a cool aspect for some time; give plenty of air but water sparingly. *Carnations and Picotees.*—Finish potting by the 20th, expose those first potted, but not to heavy rains. *Dahlias.*—Gather seed if required, when it can be procured ripe. *Hollyhocks.*—Of these seed can now be had in abundance; strike cuttings; pot the stools of choice varieties for a supply of cuttings. *Pansies.*—Cuttings put in now will soon make excellent plants; pot for filling beds in March; watch for the least symptom of mildew and apply the best known remedy, sulphur; give plenty of air, but water sparingly. *Pinks.*—Finish planting, and pot a considerable number for planting out in February or early in March. *Tulips.*—Planting should be done the beginning of next month, therefore make due preparations for the proceeding, by the end of the present one.

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J. Walter Lith. 15 Dean St.

Huyshe's Victoria Pear.

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HUYSHE'S VICTORIA PEAR.

WITH AN ILLUSTRATION.

This is another of the series of seedling Pears raised by the Rev. John Huyshe, of Clysthydon, near Exeter, and is also, we believe, the first of them that fruited. It is now some years since Victoria and Prince of Wales made their appearance together, the latter being then named Huyshe's Bergamot, from the flavour somewhat resembling that of Gansel's Bergamot, its male parent. From the time these two Pears were first submitted to the most competent fruit judges of the day, they acquired a popularity they have since continued to maintain; indeed there is every probability that they will not cease to be regarded as ranking among those that are best adapted to the soil and climate of this country.

Victoria has been so long under trial in every kind of soil and situation, that its reputation as a hardy and prolific Pear is now well established; and these two qualifications, coupled with the equally important one of being an abundant bearer, recommend it not only to the private grower, but to the market gardener and orchardist. For the latter it is well adapted, on account of its vigorous growth, and the large dimensions which it acquires. The season, too, at which the fruit is in perfection, when most of the best kinds are passed, is one of its great recommendations.

The fruit is medium sized, oval or almost cylindrical, flattened at the ends. Skin yellowish, freckled and veined with russet. Eye small and open, set in a shallow depression. Stalk very short and thick, inserted without depression on the end of the fruit, and sometimes obliquely inserted as in Beurré d'Aremberg. Flesh yellowish, melting, rather gritty at the core, juicy, rich, sugary, and vinous. It is in use during December and January.

H.

CULTURE OF THE TREE PÆONY AND ITS VARIETIES.

Tree Pæonies are among the most beautiful of hardy shrubs, and are great ornaments to the flower garden when in bloom during the month of May. They are not, however, grown so generally as their very great merits entitle them to be. The reason I believe is, that many persons think they are not sufficiently hardy to endure our severe winters. A strong rich soil, with plenty of moisture during the growing season, has generally been recommended as best adapted for them. They will grow very well in such a soil; but if the subsoil be of a retentive nature, and the situation low and confined, the young wood and buds will not get properly matured in unfavourable summers, and they will in consequence suffer more or less should severe winters follow.

There is a very fine specimen of the tree Pæony (Pæonia Moutan), growing here. About fourteen years ago I removed it, in consequence of some alterations that were then being made, to its present situation. The soil is of considerable depth, but by no means rich; the subsoil is as dry as possible, and the situation is sheltered, but open to the sun. It has grown well; and though it has never had the slightest protection whatever, either in winter or spring, it has never been injured in the least degree, and is a most beautiful object every year, when in flower during the month of May.

The tree Pæony and its varieties will succeed well in the open border

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without any protection whatever, and without any particular preparation of the soil if only the subsoil is dry. The best time for planting them is towards the end of October or beginning of November, but with care they may be removed at any time, except, perhaps, while in flower. With a little management they force well, and are very useful for decorating the conservatory in spring.

They are increased by cuttings taken off in August, or in the early part of September, with part of the wood of the preceding year attached, and planted in a sheltered situation where they will root freely. They may also be increased from single eyes like Vines; also by layering, and by dividing the old plants.

If the tree Pæony were a new plant what a deal would be thought of it, and how eagerly would it be sought after! But, because it is an old plant it is neglected. If it were a tender delicate shrub, one could account for this neglect of a most beautiful plant; but on the contrary, it is one of the hardiest of shrubs, capable of enduring the severest frost of winter or spring without any protection whatever.

Stourton. M. Saul.

[Thanks to the very successful Chinese expeditions of Mr. Fortune, and to the perseverance and skill of continental cultivators, there are now to be had many very charming varieties of the tree Pæony, which far surpass in beauty the sorts which are more generally known and distributed. We are surprised that they are so little appreciated.]

THE TOMATO AND ITS VARIETIES.

The great interest which appears to be taken in America in the cultivation of Tomatos, and the numerous varieties mentioned in their garden publications, suggested to the authorities at Chiswick that it would be desirable to institute a trial of them here. Accordingly, in the spring of the present year, a large collection of varieties was procured from Messrs. Thorburn & Co. of New York, Messrs. Barr & Sugden (who obtained a collection from Germany), Messrs. Veitch, Vilmorin, Carter, and Williams. In this country Tomatos are mainly used for making sauce, or stewing whole; hence the varieties producing the largest fruits are the most esteemed. In warmer climates, however, as in the south of Europe, and in the United States of America, they are consumed to a much greater extent, and are used in various ways, being even much relished by some as a dessert fruit, eaten in a raw state; the green fruits are also preserved with sugar.

All the varieties were grown and fruited in pots under glass, which has afforded an excellent opportunity of seeing them all in their true character. They were likewise grown in the open air against a south wall, where some of the later varieties, such as the Tomato de Laye, Fiji Island, and, Tilden, have not done well in this cold season. Grown in pots, the Tomato makes a very handsome decorative plant, the Cherry, Plum, and other small-fruited sorts especially so. Few plants are more strikingly ornamental in the autumn months than these when well grown and laden with their numerous clusters of brilliantly coloured fruits.

The earliest variety is the *Red Cherry Tomato* of Thorburn (Cherry-formed, Barr & Sugden), the fruits of which are round, red, about the size of Cherries, and borne in clusters of from six to ten fruit in great abundance. It forms a very handsome plant of somewhat slender growth, with the leaf-divisions small and deep green.

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The *Yellow Cherry* (Small Yellow), is the same as the Red Cherry, except that the fruits are yellow.

The *Pear-formed Tomato* of Barr & Sugden (Pear-shaped, Thorburn), has the fruits from 1½ to 2 inches in length, red, of the form of a small Pear; the earlier and smaller fruits very regularly and evenly so, while the later fruits on the same plants, which are somewhat larger, are nearly all oblong and obtusely angular, showing a very marked difference from the earlier ones. It is very prolific and hardy, the fruits borne in clusters in great abundance, and the plant consequently very handsome.

The *Yellow Plum Tomato* of Thorburn (Plum-formed, Barr & Sugden), has the fruits small, yellow, oval in shape like a Damson, and of about the same size; the earlier fruits very evenly formed, the later ones somewhat angular. It is very prolific, hardy, and handsome.

The *Round Red Tomato* of Barr & Sugden (Extra Early Red, Thorburn; Sims' Mammoth, Barr & Sugden), is a few days later than the foregoing; the fruits are red, roundish, ovate, and smooth, about the size of a Washington Plum. It is very prolific.

The *Large Red Italian* of Barr & Sugden (Orangefield, Williams), is the earliest of the large-fruited sorts; it is very dwarf and prolific, bearing fine fruit within 6 inches of the ground. The fruits are very large, broad, red, and deeply corrugated, or ribbed. It is an excellent variety, and one of the best in the collection.

Keyes' Early Prolific of Carter, is a tall-growing variety, with the divisions of the leaves larger and fewer in number, and also of a lighter colour than in any of the other sorts. The fruit is medium-sized, roundish, pale red, slightly corrugated, somewhat later than the Orangefield, and very productive. It is altogether a first-class variety.

The *Grosse rouge hâtive* of Vilmorin, is later than the Orangefield. The fruits are large, broad, corrugated, red. It is very prolific, and vigorous; and the leaves are of a very pale green.

The *Great Mammoth* of Barr & Sugden (Large Red, Thorburn), has smaller and more finely cut leaves, with the fruits very similar to those of Grosse rouge hâtive.

The *Large Red* of Veitch, is synonymous with Powell's Prolific. The fruits are medium-sized, roundish, and slightly corrugated, and the plants are very prolific.

The *New Giant* of Barr & Sugden, is a very large and coarse late variety; the fruits red, very deeply corrugated, and irregular. The plant is robust, and not very prolific.

The *Tilden* of Thorburn (Red Valencia Cluster), is a very strong-growing variety, much praised in America. The fruits are large, full, roundish, slightly corrugated near to the stalk only, of a deep red colour. The leaves are deep green. It is rather late, and not so prolific as others, but very excellent.

The *Fiji Island* (Lester's Perfected, Thorburn), is very similar in all its characters to the Tilden, excepting that its fruits are of a decided crimson, quite a distinct colour among Tomatos. The fruits are large and very fine, both of this and of the preceding variety.

The *Large Yellow* of Veitch is the same as the common Large Red, excepting that the fruits are yellow; they are large and deeply corrugated, and the plant is very prolific.

The *Tomato de Laye* (Grenier; Upright or Tree Tomato, Vilmorin), is of a stiff erect habit of growth, and will stand without stakes. The leaves are

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deep green, and the fruits are large, full, rounded, and slightly corrugated. It grows from 2 to 2½ feet in height, and is tolerably prolific, but it is very late, and is only suited for cultivation in this country in exceptionally warm seasons.

The *Whortleberry Tomato* proved to be nothing more than one of the forms of the little black-fruited Solanum nigrum, a weed of our gardens.

A. F. B.

IXIAS AND TRITONIAS.

We so seldom see these beautiful flowers in cultivation, that it is almost impossible to believe they are known to the majority of flower-lovers, or they surely would not be so much neglected. They are easily grown, and of the most striking beauty. Messrs. Hooper & Co. generally produce a stand of cut blooms at one or other of the summer metropolitan exhibitions, and that is nearly all that is seen of them in public. The bulbs of numerous choice and gaily-coloured varieties may be had at from 2*s*. to 7*s*. the dozen; viridiflora and crateroides, two of the cheapest amongst them, being also among the finest. We strongly recommend some of our amateur readers to devote a portion of their space to a selection of these and the allied Cape bulbs, of which such things as Sparaxis grandiflora, Tritonia crocata, Schizostylis coccinea, &c., are hardly surpassed in beauty by any flowers in cultivation. Messrs. Hooper give the following directions for growing them in the open border, and in pots:—

"To grow them in the open borders, the beds should be prepared in October or the end of September, by well digging a spit deep, and burying a stratum of good rotten manure at the bottom. The surface soil should be rendered open by mixing sand with it, and by being well broken in the digging. The bulbs should be planted in clumps or rows, from 2½ to 4 inches deep, according to size and sort, the largest bulbs being placed deepest, and each should be covered with sand an inch deep, previous to being re-covered with mould. Give the bed a southern inclination if possible; keep it free from weeds, and stir the surface occasionally with a fork. In the case of severe frosty weather, the bed should be covered 3 inches deep with dry litter, cocoa-nut refuse, sea sand, or ashes. Under such treatment they will flower at different times, from May till August.

"To grow them in pots, either for flowering in pots or for turning out in the borders in spring—which is, perhaps, a safer method to adopt with these half-hardy plants than the former, let the bulbs be potted in October, in light turfy loam and sand, with good drainage. A frame should be prepared for the pots by placing in it a bed of old dry tan and litter from the stable; into this let the pots be plunged. Give plenty of air in fine weather, and withhold water until the bulbs have made root and the leaves begin to appear; it should then be carefully given when there is no danger of frost. If the winter should be very severe, the frame may be banked up with manure or litter, and the lights covered with straw and mats. The pots may be brought into the greenhouse during February, March, or April, according to the season for blooming, or if for out-doors they may be turned out in March, sooner or later, according to circumstances—that is, so as not to be endangered by severe frosts. Under such treatment the Sparaxis will flower in April, the Ixias, Babianas, and Tritonias succeeding each other. After blooming, the watering should be continued until the leaves begin to fade, when it must be gradually withheld."

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The beautiful Tritonia crocata requires different treatment. This should not be dried off after flowering, but kept growing, as should also the equally beautiful Schizostylis coccinea.

M.

ŒNOTHERA ACAULIS AND ITS CONGENERS.

We shall not hazard much by the statement that the *Œnothera acaulis* of Cavanilles, familiar as it may be nominally to the gardening world, is in reality known to but few. It is true that for more than a quarter of a century it has, in company with the *Œ. taraxacifolia*, occupied a place in the seed and plant lists; but experiments, repeated *ad nauseam*, have proved that of late years, at least, the latter species has universally done duty for both plants. In fact, the true Œ. acaulis has so eluded pursuit, that in the absence of facilities for referring to any published figure, one had been almost led to doubt its distinctness as a species from the better known plant. This was the more excusable, that in a variety of popular gardening works, both English and French, the names are given as synonymous;* and although Don, in his Dictionary, keeps them apart, his descriptions are so nearly identical in substance, that it is difficult to seize on any valid distinction, whilst he falls into the same error as the compilers of trade catalogues in representing both species as possessing "large white" flowers, and makes the foliage of Œ. taraxacifolia pubescent, a character which belongs rather to the sister plant.

A fortunate chance having at length placed the *Œ. acaulis* within reach, the *quæstio vexata* was at once solved. So far from yielding *large* white flowers, its blossoms are in fact miniatures, rarely exceeding 1½ inch in diameter when fully expanded, the tube, which is never stained with purple, being about 2 inches in length; whilst those of *Œ. taraxacifolia* have the limb of the corolla from 3 to 4 inches in diameter, and the tube not less than 4 to 5 inches or more in length. If to this be added that the petals of Œ. acaulis are so retuse as to be almost truncate, with a distinct point or mucro at the tip, and that the foliage is more perceptibly pubescent, and of a duller shade of green than in the allied species, it will be evident that the two species are distinguishable at a glance, and the rarity of the Œ. acaulis can alone account for the confusion that has existed.

Both species produce prostrate stems, but those of the Œ. acaulis are of more slender and restricted growth than in the related species, and, so far as observed, both stems and flower-tubes are uniformly green, and are never stained with the purplish tint so generally occurring in the more robust plant. It must be admitted that, as a garden plant, the Œ. acaulis is greatly inferior to the Œ. taraxacifolia; its blossoms being too small to produce much effect. It is doubtless to this circumstance that is due its gradual supercession by its more showy relative.

The present may not be an unfitting occasion for drawing attention to two or three other white-flowered species of Œnothera, now seldom met with, though they are neither deficient in ornamental value, nor at all difficult of cultivation. Of these may be named the *Œ. anisoloba*, a native

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* In the well-known publication, *Le Bon Jardinier*, edited by botanists of repute, as well as in a more recent publication, *Les Fleurs de pleine Terre*, by Vilmorin-Andrieux, et Cie., the two names are applied to the same plant.

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of Chiloë, with flowers closely resembling those of the Dandelion-leaved Œnothera, and quite as large, but differing in having its petals more rounded at the extremity, and in its *erect* stems, which usually reach 3 or 4 feet by the end of the summer, though the plant commences flowering when less than a foot high. The foliage, too, is shorter, and less pinnatifid, and has an outward curl, which appears characteristic. Of equal interest is the fine *Œ. cæspitosa*, a Missouri species, producing short procumbent stems, lanceolate, toothed foliage, and handsome sweet-scented flowers, with deeply obcordate petals. This species is likely to perish after flowering when grown in damp soils, and it is therefore advisable to keep up a stock of young plants.

The recently introduced *Œ. marginata* belongs to the same section of the genus as the foregoing species, but differs materially in having a creeping root. Like Œ. cæspitosa, it has a lanceolate, toothed foliage, a trailing stem, which rises nearly a foot high, and large creamy white flowers, remarkable for their fragrance. Both in this and the preceding species, the seed-vessel is somewhat cylindrical, but neither is likely to mature its seeds in this climate. It is rather a singular circumstance that the flowers of all the white Œnotheras, except the Œ. speciosa, assume a more or less deep purple tint when fading.

Ipswich. W. Thompson.

AËRIAL ROOTS UPON VINES.

Your able correspondent Mr. Wighton, of Cossey Park, has at p. 224 of the Florist endeavoured, and with some ability, to lessen the difficulties which would seem to stand in the way of a proper appreciation of the causes which produce aërial roots upon Vines. Until lately—so difficult did the subject appear—I could have pretty freely, and with some slight reservation only, have endorsed your correspondent's views. But upon a recent visit to Chiswick, I saw, amidst the multitude of Vines of every description, growing to rather an unusual altitude in the large conservatory there, one of the most perfect examples of air-rooting, which induced a reconsideration of the subject, and caused me to alter my views materially. There, growing amidst varieties of almost all known kinds, this Vine, with identical treatment to the others, attracted the eye upon entry at either end, so densely and uniformly was the whole of the under surface of the rod clothed with pendent aërial roots. It grows near the centre; the roots are planted in the more northernly border, and the cane has reached the top of the house.

First, in dealing with the often-asserted influence which atmospheric humidity has on the production of these roots, I may again draw attention to the fact that numerous varieties here exist, and fruit, in close contiguity. The vast roof which spans the whole certainly gives greater buoyancy to even the densest humidity which may possibly be engendered therein, and consequently admits of the free assimilation of the whole, far more so than is possible in the best of low and comparatively stived-up lean-to houses. This example of air-rooting—at least to anything like the same extent, being a solitary case, one is naturally led to the inquiry whether health or want of health be the cause. If the former, as suggested by Mr. Wighton, then what of the whole motley tribe beside? But this cannot be. Here is to be found the "sickly one." And then as to the cause; is it to be sought for externally in the upper atmospheric range, whether of heat with humidity, or of these two in combination with "shade," as suggested, or below at the

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root, in "the border?" The adjoining Vine, and all the others to the two extremities, deny the former; and as I take it, there is something like testimony confirmatory of the latter. There is a significance attending the manner in which this Vine had set to work out its requirements. The first portion of rod emitting these air-roots, which comprised about 1 foot of its length, was that nearest the root. No sooner had these ceased to elongate, through the want of the support which they were seeking for, than others quickly shot forth immediately above them, upon a portion about equal in length; and so again and again had this evidently been repeated, until the final effort was made at the very apex, and where, the humidity being greater, they were capable of rather greater elongation. Now, why had not this humidity induced this display of roots at an earlier period?

Mr. Wighton affirms that health and vigour may be the progenitors of these roots, and gives as an illustration "old Vines" as "thick as his wrist." I will pass over the latter merit—namely, thickness of rod, and just suggest that aged Vines are not always vigorous at the root. Depend upon it, Nature is no sloth; we often mistake her "ways to an end," through overlooking the fact that she is constantly at work in converting present opportunities into future resources. The Vine at Chiswick, and many others, show no symptoms of suffering externally, but the leaf-surface, in its constant activity in direct communication with the root, feels a slight deprivation; anon an effort is made to form fresh feeders, examples of which are daily witnessed with all plants capable of forming stem roots; and, as these become abortive, one effort follows the other until autumn arrives, and, then, unquestionably, greater prostration follows than if these incessant efforts had never been made. I throw out these few hints with the simple desire, that other facts bearing upon this important subject, may yet be forthcoming from some of our many pomological friends.

Digswell. WILLIAM EARLEY.

PRUNING CONIFERS.

As this operation has lately been alluded to in the FLORIST AND POMOLOGIST, it may be of interest to some of your readers to know that pruning may be practised on large trees of the Coniferous family, as well as on smaller ones, if done at the proper season of the year.

There is growing in the flower garden here a Pinus excelsa, 82 feet high and 63 feet in circumference. The lower branches cover the ground. The bole of the tree at 1 foot from the ground is 5 feet 10 inches in circumference. It is standing near to a Picea Pinsapo of nearly the same height and size. There are only 21 feet between the two trees—a distance which ought to have been doubled, as they were growing into each other. To remedy this great evil we pruned the excelsa severely in the last week of September of last year, cutting no less than twelve large bundles of wood from it, which gave it rather a stubbed appearance till it made its spring growth. Now, at the time I am writing, there is scarcely a trace of either the saw or knife; but the appearance is very much improved both in shape and colour, as its silvery grey foliage contrasts well with the dark green of the Pinsapo. Both are hardy and handsome, and ought to be better known and more frequently planted. They stood here unharmed by the frost in that trying winter of 1861, when we lost a good Cedrus Deodara, Araucaria, and Cryptomeria, all of the same age, and growing by their side in the same soil.

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To prune trees of this size without breaking the branches is rather a difficult operation. To accomplish it, I tie together at their top, two ladders of the same length, and have a man to hold each of them while the work goes on, which should be done early in the autumn, as at that time very little bleeding will take place. If it were done in the winter I fear the frost would often prove injurious.

Elsenham Hall Gardens. WILLIAM PLESTER.

CLEMATIS JACKMANI AND ITS ALLIES.

WE have in our previous volumes figured two of the fine hybrid varieties of Clematis raised by Messrs. G. Jackman & Son, of Woking—namely, C. Jackmani and C. rubro-violacea, whose portraits tell their own tale so far as their individual beauty is concerned. These varieties were selected from a large number of seedlings raised at the same time, all of remarkable beauty, and with a great family resemblance, and all particularly agreeing in this important feature, that the plants become literally a mass of blossom from the end of June onwards till late in autumn. Their large, richly coloured, magnificent flowers would alone be sufficient to place them in the first rank of ornamental plants; but when to this are added the profusion and successional continuity with which these blossoms are produced, very few subjects indeed can claim a place beside them. It is this quality which we have the pleasure of now illustrating by means of a figure prepared from a photograph taken in August last from one of Mr. Jackman's plants, selected promiscuously, but admirably illustrating the floriferous character of these most valuable hybrids. The figure represents one of the unnamed seedlings, but the habit is alike in all.

The general hue of these new Clematises is blue or violet, a colour most useful in the pleasure ground and flower garden; but there is already considerable variety of tint. C. Jackmani, one of the finest of the series, is of a deep violet purple; C. rubro-violacea, Prince of Wales, and rubella, furnish a deep pucy plum colour, varying in shade; while the more novel tints of light mauve and greyish blue are presented by newer varieties, named Mrs. Bateman and Lady Bovill. There is also a novel feature presented in one which has been called Thomas Moore—which we hope by-and-by to figure, and which produces flowers 8 inches across—namely, a more profuse development of the staminal filaments, which form a broad whitish tuft in the centre of the very broad reddish purple flowers, giving them at a short distance much the appearance of huge Passion-Flowers.

The opportunity Messrs. Jackman have afforded us of showing the free-blooming character of their breed of Clematises enables us once more to point out how admirably they are suited for pleasure-ground decoration, and to record how well they have behaved when used for "bedding-out."

As flower-garden plants dotted about here and there on the lawn, or forming an avenue in a more formal flower garden, it is almost impossible to over-estimate the gorgeous effect which they are capable of producing and maintaining for a considerable portion of the summer and autumn months, the bloom being at its best about the middle of August. We have seen nothing more enchanting as a floral picture than that presented by a fine group of pillar plants, such as shown in the figure. To bring out their best effect as "pillars," they should be grown in "hills" like Hop plants, each hill being furnished with three stakes standing some 7 or 8 feet above

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ground. The plants require to be annually cut down nearly to the base, in the early part of winter, and should be liberally manured; they cover

the supports with their rapidly extending branches by the month of June, and then begin to branch out freely, so as literally to clothe the whole mass

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with a sheet of glowing purple. In this state there is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses; for hundreds of the magnificent blossoms are borne successionally by every plant.

The use of these plants for "bedding-out" was brought about by accident. Some plants which had been blown down by the wind were observed to be breaking out freely, and throwing up their blossoms so as to form an even surface. Mr. Jackman was hence led to fill some large beds, and succeeded, without the slightest difficulty, in clothing these most perfectly with the rich violet hues for which these plants are so remarkable, the branches interlacing, and forming in the flowering season an even sheet of colour some 8 or 10 inches above the surface. They are no doubt best adapted for beds of considerable size, and raised in the centre; but there is not the least difficulty in covering the surface, and the plants when strong and established are certain to bloom profusely. In Mr. Jackman's experiment they have been put in at about 18 inches apart over the bed, and pegged down in the same direction one over the other; and treated in this way there is, by the blooming period, just enough of foliage shown amongst the flowers to set off the colours to the best advantage, while the glorious mass of rich violet purple furnishes quite a new sensation in bedding-out.

M.

VARIEGATED ZONAL PELARGONIUM SHOW.

The Show of these popular plants, held at South Kensington on the 17th of September, was furnished with a large number of plants, though scarcely in such good condition as those shown in May. The list of awards will serve to indicate the leading plants in each section, and may serve as a guide to intending purchasers:—

Class 1.—*Six Variegated Zonal Pelargoniums not yet in commerce, seedlings excluded.*—1st, Messrs. F. & A. Smith, Dulwich, with King of Tricolors, Coruscans, Peri, Sunray, Banshee, and Earl of Derby; 2nd, Messrs. Saltmarsh & Son, Chelmsford, with Duke of Buccleuch, Alma Browning, Mrs. Pattisson, Crown Jewel, Vesuvius, and Sunrise.

Class 2.—*Six Gold and Bronze Zonal Pelargoniums, under the same conditions as in Class* 1.—1st, Mr. J. Wills, Huntroyde Park, with some splendid and finely marked plants of the following—Her Majesty, The Sultan, Admiration, Princess Beatrice, Arthur H. Wills, and Diadem; 2nd, Mr. W. Bull, Chelsea, with the following, all of Mr. Wills's raising—Modern, Success, Diamond, Umpire, National, and Duchess.

Class 3.—*Three Variegated Zonal Pelargoniums, under the same conditions as Class* 1.—1st, Messrs. F. & A. Smith, with Jetty Lacy, a very finely marked variety, Sylph, and Sunray; 2nd, Messrs. Carter & Co., with Mrs. Dunnett, a brilliant kind, Viceroy of Egypt, and Emperor; 3rd, Messrs. E. G. Henderson & Son, with Howarth Ashton, Mrs. Grieve, and Lady Sheffield.

Class 4.—*Three Gold and Bronze Zonal Pelargoniums, under the same conditions as Class* 1.—1st, Messrs. Downie, Laird, & Laing, with Kentish Hero, Countess of Kellie, a very fine variety, and Mrs. John Todd; 2nd, Messrs. F. & A. Smith, with Combatant, Brilliant, and Sybil; 3rd, Mr. J. Wills, with Illuminator, Her Majesty, and Beauty of Sabden. The plant of Her Majesty was very finely marked.

Class 5.—*The best Golden Variegated Zonal Pelargonium, under the same conditions as Class* 1.—1st, Messrs. Perkins & Sons, Coventry, with a very robust and well-marked variety, named Countess of Craven; 2nd, Messrs. F. & A. Smith, with Jetty Lacy; 3rd, Mr. Watson, St. Albans, with Mrs. Dix.

Class 6.—*The best Gold and Bronze Zonal Pelargonium, under the same conditions as Class* 1.—Messrs. F. & A. Smith were placed 1st with a plant of Criterion, a very finely marked and beautiful variety; but this was eventually withdrawn from competition, and Messrs. Carter & Co. were placed 1st with Egyptian Queen; 2nd, Messrs. Downie, Laird, and Laing, with Countess of Kellie; 3rd, Messrs. Carter & Co., with Cleopatra.

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Class 7.—*The best Golden Self Pelargonium, under the same conditions as Class* 1.—1st, Mr. Tirebuck, Luton, with Golden Drop; 2nd, Messrs Saltmarsh & Son, with Golden Queen; and 3rd, Mr. Tirebuck, with a distinct variety also named Golden Queen.

Class 8.—*The best Golden Variegated Zonal Pelargonium in commerce, two plants of each.*—1st, Messrs. Perkins & Sons, with Queen Victoria; 2nd, Messrs. F. & A. Smith, with Defiance; 3rd, Mr. Watson, with Miss Watson.

Class 9.—*The two best Golden Variegated Zonal Pelargoniums in commerce or not, three plants of each.*—1st, Messrs. F. & A. Smith, with Jetty Lacy and Louisa Smith; 2nd, Mr. Watson, with Mrs. Dix and Miss Watson.

Class 10.—*Six Gold and Bronze Zonal Pelargoniums, put into commerce within the last twelve months.*—1st, Mr. Wills, with Beauty of Calderdale, Beauty of Ribbledale, Firebrand, Perilla, Model, and Compactum; 2nd, Mr. Bull, with similar varieties, Glowworm being substituted for Beauty of Ribbledale.

Class 11.—*The best Silver Variegated Zonal Pelargonium not in commerce, the seedling plant excluded.*—1st, Messrs. F. & A. Smith, with Miss Burdett-Coutts; 2nd, Messrs. E. G. Henderson & Son, with Italian Sunshine; 3rd, Messrs. F. & A. Smith, with Peri.

From among these competing plants thirteen varieties were selected for first-class certificates—viz., *Defiance* and *Retaliator*, from Messrs. F. & A. Smith, the former with broad dark and fiery bronze zone, the margin well defined; the latter having a narrow zone of bronze and carmine, with margin of pale gold, a striking kind. *Queen Victoria* and *Countess of Craven*, from Messrs. Perkins & Sons, the former having a broad bronze and red zone, the plant large, and in fine condition; the latter had a bright red and mulberry zone, with broad margin of gold. Both of these were robust-growing and well-developed kinds. *Mrs. Dunnett*, from Messrs. Carter and Co., the zone dark bronze and fiery carmine, a somewhat weakly-looking plant as shown. *Mrs. George Hanbury*, from Mr. C. Turner, a finely marked variety with round flat leaves and a bronze and orange zone, the plant also small. *Beauty of Culford*, from Messrs. E. G. Henderson & Son, having a most conspicuous band of colour forming the zone, principally rich orange carmine, blotched with bronze; a promising kind, though the plant was small. These all belong to the section of Golden Variegated Zonals. Of the Silver-edged division, the same award was made to *Peri*, a very fine variety, the zone bronze and pink; and *Queen Victoria* and *Miss Burdett-Coutts*, two other very fine and strongly marked kinds. These were all from Messrs. F. & A. Smith. Of the Gold and Bronze Zonal section the following received first-class certificates:—*Arthur H. Wills*, from Mr. Wills, the zone dark bronze, broad and striking, on a leaf ground of greenish gold, a very fine variety; *Egyptian Queen*, from Messrs. Carter & Co., having a very broad reddish bronze zone on a golden leaf ground; and to *Mrs. Frampton*, from Mr. Uphill, Moreton, Dorchester, having a rich dark zone on a clear golden leaf ground, a fine variety.

A goodly number of the varieties exhibited in the several classes had already received first-class certificates at the metropolitan exhibitions or from the Floral Committee.

QUO.

THE CALEBASSE GROSSE PEAR.

I HAVE fruited the Calebasse Grosse Pear several years on a wall with a south-west aspect, but always found it more pleasing to the eye than to the taste. I have also tasted at fruit shows some monstrous Calebasse Pears, whose flavour was only akin to that of their namesake, the Pumpkin; and though this kind of Pear is a great bearer, it ripens about the end of September, when other better kinds are in season—for instance, the Beurré d'Amanlis, which is a free bearer upon an espalier, and though a

large, round, greenish Pear, seldom cracks in cold wet seasons, when some other russet kinds are cracked to their cores. Gansel's Bergamot is one of these, though in good seasons there are none to equal it, whether of the old or new kinds. Besides, there is a peculiar flavour in Bergamot Pears, which is pleasing to most tastes. Even the old Dutch or Orange Bergamot, grown on a wall with east or west aspect, is superior in flavour to some of the large new kinds, which, in bad seasons, are only like the Calebasse. Some of them are soft and insipid, others hard and corky, and never turn mellow or ripe, which is seldom the case with the smaller kinds, especially Bergamots. I may notice that Hacon's Incomparable is a Bergamot, only a shade better than the old Orange one; they are nearly alike in size of fruit, flavour, colour and texture of the leaves.

I may have mentioned in these pages, that the difference of the quality of fruit depends more on the texture of the leaves than on the crude sap from the roots. The mysterious change of the juice is effected by the rays of the sun, during its passage through the leaves to nourish the fruit. Thus what is to some a mystery, is explained; and the reason becomes apparent why different kinds or varieties of fruit can be grown, by grafting, on the same tree.

Cossey Park. J. Wighton.

THE CULTIVATION OF TALL CACTI.

The Tall Cacti are plants of very easy culture, but they scarcely appear to be general favourites. Yet no one can have seen the beautiful specimens that have from time to time been exhibited—those, for instance, shown by the late Mr. Green—without admiring them. Some persons are of opinion that the habit of many of the tribe is unsightly, and the blooming season of short duration; but the same objection may be raised in the case of many of our most beautiful plants, and to meet difficulties of this nature it is merely necessary to call to our aid the practice and the intelligence of our most skilful manipulators, to teach us what to do and what to avoid.

The propagation of tall-growing Cacti by means of cuttings is simple enough. It is of some importance that the cuttings should be prepared by the aid of a sharp knife, for if the wound is bruised the chances are that the cutting will decay. When taken off they should be potted into dry, gritty, open soil, or they should be partially dried by being laid by on a dry shelf for a week or ten days. I generally put three or four cuttings into two or three-inch pots, according to the size of the cuttings. The soil used for this purpose is composed of three-fourths of road grit, with the remainder mellow loam, charcoal, and lime rubbish, all tolerably fine. The cuttings being of a very succulent nature, they should not be placed in a humid atmosphere, but on a dry shelf in some warm and airy house, where they can be kept tolerably dry. Thus treated, they will be found to emit roots in a very short time, and may be potted singly into small pots, using plenty of drainage, such as charcoal or old mortar. As the plants grow they must be shifted into larger pots, using the soil somewhat coarser at each successive shift, and giving abundant drainage; this is essential, as the plants, although required to be liberally watered when growing and blooming, require that the water should percolate freely, and dry off quickly. One or two waterings during the flowering season with weak manure water will assist the blooming materially. During the dormant months of winter very few waterings will be necessary.

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As regards tying and training, the plants may be made to assume a variety of forms according to the taste of the cultivator. If large plants be the object, liberal shifts, with a higher temperature than that of a cool greenhouse, will greatly assist them, especially if the pots could be plunged in a dry, half-spent tan or bark-bed. The soil, too, may consist of a small portion of peat, chopped up, but not too small, and of very old thoroughly-decomposed cow-manure, added to equal parts of good fibrous loam and road grit, which is for the most part pulverised stone.

The season of blooming can be prolonged by removing the plants into a cool house, and well shading them from intense sun heat. Should they become at all sickly, and the soil about the roots sour and stagnant, they may be carefully shaken out of the pots, and repotted into smaller pots, the shoots being pruned and regulated, and the whole subjected to the treatment advised for plants when rapid growth is desired. In such cases it is necessary to be careful and judicious in the application of water.

F. K.

JUDGING GRAPES.

The garden literature of the day is just now teeming with articles on this important subject; but I cannot yet see that a reasonable solution of the difficulties with which it appears to be beset has been offered, nor do I think that one will be, so long as the advocates for testing by Flavour, urge that Flavour should have a predominating influence in making an award. I am inclined to the opinion that Colour and Bloom, Size and Compactness of Bunch, Size and Evenness of Berry, are equally essential to the perfection of Grapes for exhibition, and wherever present in perfection ought to carry an equal number of points with Flavour.

The subject has many aspects. It may be said that Grapes are grown to be eaten, and therefore their flavour ought to carry the sway. Granted, for a nobleman's or a gentleman's table; and if the owners in these cases choose to prefer a thin-skinned "red" Black Hamburgh to a well-coloured bunch of the same, because it may, perhaps, possess more sweet watery juice, and less of the brisk vinous flavour which is characteristic of a perfectly ripened well-coloured specimen, why no one can reasonably object. But it is different with the exhibition table. Here there are standard and recognised points of excellence, founded on appearance; and so long as Grapes are submitted to the inspection and admiration of the ladies and gentlemen who come to these shows to feast the eye, so long will those points of excellence continue to be recognised, and flavour only be called in when there is perfect equality in other respects. Such has been my practice on the several occasions when I have been called upon to act as a judge of Grapes; and, moreover, I have never hesitated in the case of a disputed point to remove a berry or two from an inconspicuous part of a bunch, in order that the perfect maturity of the fruit as regards ripeness, and consequently flavour, should have a due weight in the decision. But while allowing this, I cannot agree with those who would give to flavour an undue predominance over all the other recognised points of excellence. We ought to remember that the exhibition table is not legitimately the place to decide upon the respective merits of Grapes as regards flavour; if it were so, the labours of the judges would be multiplied tenfold or more. On the contrary, they must there be judged by appearance and fitness for the object with which they have been exhibited, which I take to be, principally, the gratification of those

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who pay to come and look on, and who like to see before their eyes a reason for the decisions arrived at, and cannot be supposed to be able to appreciate by the eye, the minute inferences drawn by the judges as regards flavour.

If it be considered desirable that decision by flavour should become a recognised feature at our exhibitions, let us not therefore interfere with the noble specimens which are brought before us to be judged principally by their appearance and fitness for a grand display; but let those who draw up schedules introduce other classes, such as, for example, "for the best flavoured bunch of black Grapes not having a Muscat flavour"; "ditto having a Muscat flavour"; with similar classes for white Grapes. In these cases let the judges be instructed to award the prizes by flavour alone, irrespective of any other quality, and let the advocates of flavour support these exhibitions well, and then we may possibly arrive at some conclusion on the subject, and learn whether ill-coloured Grapes under equal circumstances as regards ripeness, ever do attain a better flavour than well-coloured specimens—in fact, whether Red Hamburghs or Black Hamburghs are best. If the Red, then let the advocates for Grapes "grown to be eaten" take no further trouble about colouring their Grapes; for although an object of ambition with every good and skilful gardener, it will no longer be considered a *sine qua non* amongst those who seek for the gratification of their senses through the palate, and not through the eye.

Redleaf. JOHN COX.

SPRING CROCUSES.

I know of no flower that graces the out-door garden which is so thoroughly acceptable at its particular season of blooming as the early Crocuses. Reared amid the raging of the "elemental war" that follows on winter's supremacy, they presently come forth "like stars, to tell us Spring is born," studding that material firmament—earth.

The immense number of Crocus bulbs imported every year from Holland—a sum-total so vast as to appear almost incredible—proves how much is appreciated the valuable service rendered in its own good time by this humble little floral ministrant. Nothing else but the Crocus can make such an acceptable and charming display in the early spring—a display the more appreciable, as there is then but little in the way of flower to come into competition with it. Somewhat restricted though the variations of colour may be, still there is enough of variety to enable them to be grouped together very prettily and effectively—enough when so arranged to produce such a mass of blended colour, as to negative the charge of sameness sometimes brought against the Crocus as an ornament of the flower garden. Planters of the Crocus should make a selection of a few distinct kinds, and use them for spring effect. With a larger selection may come to a serious degree, want of uniformity in growth as well as in the time of flowering, and these might possibly impair the effect sought to be secured.

During the autumn of 1866 I endeavoured to obtain as many as I possibly could of the so-called varieties of Crocus that are annually imported from Holland, and was enabled to plant a good-sized piece of ground with the collection I succeeded in getting together. I had white, striped, blue, purple, violet, lilac, yellow, and edged flowers, and at the time of planting I could not help remarking, on carefully comparing the corms the one with the other, how much diversity of shape and size prevailed. As I

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had not less than twelve bulbs of any one kind, I was enabled to work out the task of comparison somewhat satisfactorily to myself at least, both by taking note of the shape of the bulbs, and afterwards by comparing the flowers when in bloom.

Of diversities in the habit and style of growth of the different varieties but little can be said. The early-flowering Cloth of Gold, the Common Yellow, and the Versicolor, are peculiar in this respect; the other varieties must be classed together, excepting, perhaps, that though the style of foliage may be much the same, the largest bulbs invariably produce the strongest leaves. The earliest to bloom are the Yellows; the earliest of these two—for there are but two distinct varieties of yellow spring-flowering Crocus—is the Cloth of Gold. It is very dwarf-growing, and blooms freely. The Common Yellow is a little later, grows taller and stronger, and produces more flowers than any other variety. It is remarkably free in blooming, and as a rule should be allowed plenty of room, as the bulbs branch out in a remarkable degree. The Giant Yellow, the large, and also the new Golden Yellow, are but larger bulbs of this variety. It is imported generally in two sizes, and where extra sized roots are added, they are christened and priced accordingly. The old Crocus versicolor, or Cloth of Silver Crocus—for any original difference between them appears to be entirely lost—is a dwarf-growing and very free-blooming kind, and does well for massing. The flowers are white, with purple stripes, but they are neither so large nor so stout as the newer striped varieties. The Scotch Crocus, so called, now rarely met with, is a striped variety imported from Holland under that name. The bulbs are very peculiar, being hard and smooth, and unlike any other spring-flowering kind. After these it would be difficult to assign the order of flowering. Speaking generally, the Striped varieties are the earliest, then the Blues, and lastly the Whites.

Of the Striped varieties, Bride of Lammermoor, La Majesteuse, and Sir Walter Scott are three very fine varieties, of much the same build and growth, Bride of Lammermoor being the darkest, and Sir Walter Scott the boldest in the colour of the stripe. Of the darker striped kinds, Albion is the largest and showiest; the flowers are large, and of a globular shape, heavily flaked and striped with violet; it is also distinct and good. Florence Nightingale is a large and bold light striped variety. Ida Pfeiffer, a lovely flower of good form, delicately striped with rosy lilac, very fine. Madame Mina, a very pretty and free-blooming pale violet-striped flower, of good form. Princess Alexandra, Argus, Comtesse de Morny, Parnassus, Elfrida, and Albertine, are more than summed up in the sorts described above—they are not even required as varieties. Rhea Sylvia is a medium-sized pale, striped flower, but very pretty. Duke of Cumberland, a deep lilac, with stripes of a darker shade, and edged with white, is a somewhat curious and novel flower, which could be classed both with the Blue and the Striped varieties, and yet belongs exclusively to neither, so that perhaps it would be best to class it with the Edged flowers. I had two forms of Argus, one a very pale striped flower of medium size; the other, a heavy violet striped flower with more colour in it than could be seen in Albion, though otherwise not differing materially from it, nor yet quite so large. Lastly, Maria, La Sylphide, Miss Priestly, Géant des Batailles, Baron Chasse, Duchess of Sutherland, Napoléon, Leviathan and Philades are sorts that can be obtained to suit the fancy of the importer to whom names are an object, but are scarcely required for any other purpose than to impart obesity to a catalogue.

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The White varieties necessarily admit of even less variation. The most beautiful variety I have ever seen, and one that cannot be too highly commended for its superb quality, is named Goldfinder. The flowers are very large, globular, and pure in colour, and have rich dark orange stamens. Caroline Chisholm and Mrs. Beecher Stowe are undoubtedly the same. It is a dwarf-growing free-blooming kind, very useful for pots. Grand Conquerant is one of the most novel white flowers I have yet met with; pure white, edged with citron, and extremely pretty, as well as free-blooming. Mont Blanc has large and bold pure white flowers, and though classed with the White varieties, the insides of the blooms are faintly pencilled with lilac. It is a robust-growing kind, useful for out-door work. To these add Mammoth, a large white flower, changing to cream; Calypso, another creamy white, and Queen Victoria, and the list is complete. A reserve list can be formed of the following varieties:—Mathilde, Grand Vainqueur, Porpus, Isabella, Marie Antoinette, and Bride of Abydos.

Of Edged flowers—a very small division—the variety named Duke of Cumberland, previously described, can be regarded as one; the old Ne Plus Ultra, violet with white edge, a large, fine, and showy flower, is another; and Lord Wellington, deep violet, edged with white, a small but pretty flower, complete the list of kinds I have seen. I find Ne Plus Ultra to be very effective out of doors, and it has the additional recommendation of being very cheap.

Lastly comes that somewhat numerous group including the Blue and Purple varieties. Among these there are some beautiful kinds, large in size and deep in colour. I find the darkest coloured of the whole group—not simply the darkest on first expanding, but the darkest throughout the blooming period—to be a variety with a rather small bulb, named Sir John Franklin. It is of a rich dark glossy purple, and it did remarkably well with me out of doors. David Rizzio, often termed the darkest blue, is paler in colour than the foregoing; and Prince Albert is paler still; yet both are fine bold flowers. Prince of Wales is identical in every respect with Prince Albert; and Vulcan, a very large pale violet flower, is the same as Othello. Lilaceus superbus is a somewhat distinct kind, with a broad flake of a lilac tint up each petal. These are all the distinct shades of blue, so-called, I could possibly light upon. I add a supplementary list of the following kinds which came under my notice, premising that they are well represented by the foregoing:—Baron von Brunnow, Brunel, Lamplighter, General Pelissier, Charles Dickens, Jupiter, Von Schiller, Sir R. Peel, Loveliness, and La Simplicité.

I am compelled to admit that, though amongst the varieties in these reserve lists of the several divisions of colour there were many points of resemblance, yet from a close and daily inspection one seemed to be able to detect some small and distinct traits of character, either in the size or shape, or in the purity or depth of the colour of the flowers, in the height they grew, in the time of flowering, and even in the form, the colour, and the greater or less prominence of the stamens. I am also led to admit that we ought not hastily to charge the Dutch growers with sending us professedly new varieties, that are really repetitions of what we already possess. I am disposed to think they select their seedlings with considerable care, and for some novelty or distinctness possessed by them. There will be an inevitable sameness, even when coupled with the largest quantum of novelty, but then these new kinds are rarely priced at anything like an exorbitant rate, as it

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would appear it is the invariable rule to obtain them in bulk, before they are sent out.—(*Abridged from the Gardeners' Chronicle.*)

Quo.

ON THE CULTURE OF THE RANUNCULUS.

The garden Ranunculus was brought originally from the Levant. It has been greatly improved by cultivation, and the varieties are now very numerous and extremely beautiful. Indeed, it is scarcely possible to conceive anything more striking or brilliant than a fine bed of Ranunculuses in full flower. As the time for planting is approaching, a few remarks on their culture may not be altogether unseasonable. The following are the chief points to be attended to:—1, Soil for the Beds; 2, Depth of Soil; 3, Situation of Beds; 4, Planting the Roots; 5, Future Culture; 6, Shading; 7, Taking up the Roots.

1. *Soil for the Beds.*—The best soil may be composed in this manner:—Take a quantity of fresh earth from a rich pasture, about 6 inches deep, and lay it in a heap to rot for twelve months before it is mixed, turning it occasionally to sweeten it and break the clods; to this should be added a fourth part of rotten cowdung, and a proportionable quantity of river sand. The whole should be well mixed up together.

2. *Depth of Soil.*—The soil in the beds should be at least 2 feet deep, and should not be raised more than 2 inches above the surrounding surface. It should be rather dry when put into the beds, and should not be pressed, but left to settle. Slate or stone should be used for edgings to the beds, in preference to Box, as they do not harbour slugs,

3. *Situation of Beds.*—These should be on a dead level at the lowest part of the garden. It will also be an advantage if they are not exposed to the midday sun. A high or elevated dry situation must be avoided.

4. *Planting the Roots.*—The roots may be planted any time from the beginning of November to the middle of February. If the soil and situation be cold and wet it will be better to defer planting until the end of January or beginning of February, as the weather may favour; but in favourable situations November is to be preferred, as the roots will have more time to vegetate and form themselves, and will in consequence bloom rather stronger, though only a few days earlier than those later planted. The surface of the beds should be raked perfectly level, and the roots planted in rows 6 inches apart, and about 2 inches deep, keeping the crown upward. A little coarse sand should be placed over every root, and the surface should then be made level.

5. *Future Culture.*—When the roots are planted in November nothing further will be needed until severe frosts are expected; then the beds should be covered to the depth of 3 or 4 inches with tan, decayed leaves, or other material to keep out the frosts. This covering should be removed as soon as all danger from severe frost is past. Early in spring, when the plants make their appearance above ground, so as to render the rows easily discernible, the surface of the earth between the rows should be trodden carefully, so as to make it firm and compact; and the soil around the plants should be compressed with the fingers. Some fresh soil should then be put between the rows about an inch or so in depth; this will keep the soil moist and cool. If these matters are properly attended to no watering will be necessary. The surface of the soil should be stirred a little between

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the rows occasionally in dry weather. Watering should, if possible, be avoided, as it does more harm than good.

6. *Shading.*—Sometimes the weather in May is very dry and hot; at such times shading becomes absolutely necessary. A light framework should be fixed over the bed and covered with light canvas or calico. The plants should have abundance of air and light, but be shaded from the heat of the midday sun.

7. *Taking up the Roots.*—By the end of June, or soon after, the greater part of the plants will appear brown and dry; the roots should then be taken up. It is best to take them up singly as soon as they are ripe. Cut them off and place them in an airy place to dry; when fit, store away in bags and boxes. When all are taken up, dried, and stored away, nothing more remains to be done until the return of the planting season.

Stourton. M. Saul.

NOVELTIES, &c., AT FLOWER SHOWS.

As the great shows are over for the season, my range of Novelties will be confined to the Meetings of the Floral Committee—by no means the least interesting of the horticultural gatherings held during the year. Last month I brought before the notice of the readers of the Florist and Pomologist the claims of Mr. W. Paul's handsome golden-foliaged Cupressus. At the Meeting of the Floral Committee on the 1st of October two other variegated forms of *Cupressus Lawsoniana* were produced by Mr. Thomas Cripps, Tunbridge Wells: one, *flava*, a handsome golden-tinted plant, to which a first-class certificate was awarded, and *nivea*, a silvery variety, not yet sufficiently developed in character. But for their rich and rare beauty the prime feature of interest at this Meeting was the seedling Clematises shown by Mr. Cripps. With the exception of two of the darkest-coloured kinds, seedlings, or, perhaps, hybrids of C. Viticella, the others were seedlings of C. lanuginosa. First-class certificates were awarded to *Star of India*, a flower in the way of C. rubella, but deeper in colour, the ground violet, with a reddish purple band along each segment of the flower; to *Maria Lefebvre*, white, delicately tinted with mauve, and having a stripe of pale mauve along each petal; to *Madame Van Houtte*, pure white in colour, large in size, and extremely handsome; and to *Sensation*, of a rich shade of mauve, a very large and striking flower. The whole of the batch were of fine quality, but only cut, and, in many instances, solitary blooms were produced, so that no conclusions as to the habit of the plants could be drawn. Besides those named there were:—*The Czar*, a flower coming nearest to Star of India in point of colour; *Triumphant*, *Gloria Mundi*, *Forget-me-not*, *Lady Camden*, *Guiding Star*, *Beauty of the Bower*, and *Captivation*; *Pulcherrima*, in the way of Maria Lefebvre; and the following pure white flowers—*Adelina Patti*, *Mrs. Nasmyth*, and *Annie Wood*. In the way of Ferns, a first-class certificate was awarded to *Lastrea lacera*, a handsome hardy robust-growing evergreen Japanese Fern, from Mr. Bull; and to *Gymnogramma peruviana laciniata*, a heavily-powdered Silver Fern, of a good habit, with dissected fronds, from Mr. Parsons, of Danesbury. *Aspidistra elatior angustifolia variegata*, from Mr. Bull, is said to be a hardy plant suitable for rockwork; the narrow green leaves are heavily striped with pale yellow; it was awarded a first-class certificate.

Some varieties of *Veronica Andersoni*, the plants grown as standards on stems 3 to 4 feet in length, were shown by Messrs. E. G. Henderson & Son,

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and attracted much attention. They had symmetrical heads of bloom, and there was a profusion of flowers. To *V. purpurea violacea* a first-class certificate was awarded; the individual spikes of flower in this variety were nearly 4 inches in length, and the colour a rather bright hue of violet purple. The other varieties were:—*azurea superba*, bluish violet; *Madame Boucharlet*, pale rosy lilac; *meldensis*, bright lilac; *Delfossiana*, pale rose. The leaves of the latter variety were much smaller and narrower than is usually seen, and the masses of bloom had quite a bright appearance for this generally sober-looking plant.

Mr. Standish produced some fine seedling *Gladioli*, to three of which first-class certificates were awarded—viz., *Lady Alice Hill*, rosy lilac, pencilled with white, and streaked along the throat with crimson; *Lord Kenlis*, bright orange red, with lemon throat; and *William Menzies*, rosy carmine, with a faint flake of white; all forming fine and showy spikes. In addition, Mr. Standish had a large collection of named kinds, mainly of his own raising. A first-class certificate was awarded to *Dahlia Vedette*, from Mr. Turner, which had improved considerably since last seen. The same award was made to what appears to be a capital white bedding Dahlia, named *Rawlings's White Bedder*, from Mr. George Rawlings, Romford. The flowers are pure white in colour, and as good as those of an ordinary show kind; they are also freely produced. *Pelargonium Achievement*, a bright and handsomely marked golden variegated Zonal, really one of the very best that this season has produced, was shown by Mr. J. Stevens, Ealing, and awarded a first-class certificate. *Ealing Rival* and *Mrs. Stevens*, two other kinds of the same class, promised to be fine when well developed.

At the Meeting of the Floral Committee on 15th October the subjects staged were not quite so numerous as is generally the case. A collection of very fine cut Orchids, from Mr. James Anderson, gardener to Thomas Dawson, Esq., Meadow Bank, Glasgow, was a fine feature on this occasion. The season has been unusually productive of good bedding Lobelias, and at this Meeting a fine addition came from Mr. Bowie, Chillingham Castle. It was called *Little Gem*, and appeared to be a dwarf and compact-growing form of L. Paxtoniana, the flower being white, broadly edged with blue. It was awarded a first-class certificate. Mr. Stevens, Ealing, again produced his golden variegated Zonal *Pelargoniums—Ealing Rival* and *Mrs. Stevens*, and received a first-class certificate for the former. It has a zone of rich carmine and dark bronze, the leaf margin bright gold; it is a finely marked variety. Some very fine and promising yearlings came from Mr. Walch, Hillingdon, which will, no doubt, be seen again. Mr. J. Aldred, Kilburn, also had some promising yearlings.

Ferns were in strong force, Mr. Bull showing some fine kinds. First-class certificates were awarded to *Polystichum angulare lineare* and *cristato-gracile*, *Lastrea Filix-mas crispa gracilis*, *Athyrium Filix-fœmina pulcherrimum*, and *fissidente-excurrens Lyelli*. Mr. Bull also received the same award for a Zamia-like plant—*Encephalartos lanuginosa*, a distinct and handsome species, from South Africa, with greyish woolly fronds having narrow pinnæ; and for *Aucuba japonica mascula marmorata*, a very handsome variety, with brightly coloured golden-blotched leaves. A vigorous-growing variety with very large coarsely-toothed green leaves, called *A. japonica fœmina grandis*, was considered valuable as a female plant, though not differing materially in foliage from some others, chiefly males, previously seen.

Some capital plants of *Odontoglossum grande* came from the gardens of

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the Society, the blossoms of several of them being of very fine quality; and some plants of the pretty Swan River *Trichinium Manglesii*, came from Mr. Bull.

In the notice of the Crystal Palace Show (p. 231), it is inadvertently stated that second-class certificates were given to Messrs. Kelway & Son for four seedling *Gladioli*. This should have been first-class certificates. The name of the first-mentioned was *Mr. Robinson*.

R. D.

OUR MONTHLY CHRONICLE.

Horticultural Drawings. — A new aspirant to honours in this department of horticulture, in the person of Miss Emma Fothergill, Somerset House, Old Shirley, Southampton, exhibited some paintings of fruits and flowers at the meeting of the Floral Committee on the 15th of October. Prominent among them were two groups of leaves of Variegated Pelargoniums: the one of Messrs. F. & A. Smith's new Gold and Silver Variegated Zonal kinds; the other of Mr. Wills's new Gold and Bronze Zonal varieties. The execution of these was especially truthful, and this self-taught young artist bids fair to take a good position in the future as a delineator of flowers, fruits, and plants.

Allium carinatum.—This was formerly considered as a British species, but the plant figured for it in "English Botany", and what has since been gathered for it, have proved to be mere broad-leaved varieties of Allium oleraceum. The Northamptonshire Field Club has, however, brought to light, from the neighbourhood of Newark, an undoubted specimen of the true A. carinatum, characterised not only by its lilac flowers, with the concave connivent divisions of the perianth, but by the exserted stamens. It grows on sandy wet soil, mixed with a little lime, amongst rushes and coarse grass; and was found by the Rev. W. T. Hampton, Rector of Stubton, between Brandon and Doddington. It quite accords with the Hungarian Allium flexum.

Royal Ascot Grape.—The productiveness of this Grape is extraordinary. After every successive stopping fresh bunches are developed on the young shoots put forth. The regular crop has for some time been cut, but numerous bunches of a second crop, left to test the fruitfulness of the variety, are now ripening, while there are others with the berries as large as Peas, and others, again, from recent stoppings, younger still. So prolific is it, that the young plants just struck from scarcely ripened buds are in almost every case showing clusters which promise to grow on and perfect themselves during the winter or early spring. It seems impossible to repress the bearing propensities of this Grape; and this quality, if maintained, coupled with its size and fine quality, mark it out as a grand acquisition for Grape-growers.

Datura arborea.—A bed of tree Daturas well repays the trouble of cultivation. They require to be planted out in May, and during summer should have their leaves syringed constantly, and plenty of water and liquid manure given them two or three times a-week. On large plants hundreds of flowers open at once. The single ones yield two displays of flowers yearly, but the double with fewer flowers at a time, are in constant bloom during the summer. The plants when taken up and housed for the winter, are got up with as much earth as possible, placed on a narrow border behind the stage of the greenhouse, and their roots covered with leaf mould, both leaves and roots being kept well moistened. They lose part of their leaves and die back a little, but easily recover in spring.

Dipladenia amœna.—Mr. Dean, of Shipley, has sent us blooms of this charming novelty, raised between D. splendens and D. amabilis, and which we hope to figure in due course. The flowers are large, of a delicate rose pink, deeper in the throat and towards the edges, and paler towards the centre of the lobes. The leaves are oblong acuminate, downy on both surfaces, and of a deep green. The flowers are of the splendens type, but have more colour; and the plant is said to be a much freer bloomer than even D. amabilis, itself the freest amongst the Dipladenias already known.

Test for Alkalies.—A new and highly sensitive re-agent for alkalies and alkaline earths has recently been discovered by Professor Böttger in the leaves of Coleus Verschaffeltii. The re-agent is prepared by digesting the fully developed leaves of this plant in alcohol, and impregnating slips of Swedish filter paper with the solution obtained. This test paper is of a beautiful red colour, which becomes green under the influence of an alkali or alkaline earth. It is not affected by free carbonic acid, so that it may be used for detecting carbonate of lime in water.

Potato Disease.—Mr. Jennings, nurseryman, Shipston-on-Stour, has published a little brochure, the object of which is to tell how to grow the Potato free from disease. As this insidious enemy has been busy in certain localities during the present season, it is clear that we may not relax in our endeavours to do battle with it; and hence we desire to invite attention to Mr. Jennings' very practical

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little treatise. In what his remedy consists it would be unfair to tell, as the brochure may be had for a few pence; but he is so confident of its success, and the plan itself is so easily carried out, that no one need hesitate to give it a trial. "After having experimented several years" he remarks, "I have at length discovered a method whereby the murrain can be prevented," and the plan described has been followed for three years with perfect success, its object being to prevent the disease from reaching the tubers. The most critical time for the crop is when the tubers are approaching maturity. Then if the murrain makes its appearance, the remedy must be applied with promptness, or the crop will be lost.

Vine Extension.—Mr. W. Thomson, in the fifth edition of his treatise on Vine culture, recently published, has the following remarks on the extension system, as it is called, which has lately excited so much interest in the garden newspapers:—"Theoretically, it must at once be admitted that the one-vine or 'extension' system stands on vantage-ground. No one can deny that a tree which is largely developed, with its roots ranging over what I may term an extensive pasture-field, is likely to maintain its health and vigour for a much greater length of time than one that is by the force of circumstances restricted in its growth. But there are practical difficulties in the way of the general adoption of the former mode of culture. In the first place, all experience goes to prove that the Vine is what may be termed a rambling rooter. If the border is not carefully made, and of such materials as to induce the formation of a numerous progeny of fine branching fibry roots, the width of an ordinary Vine border will soon be traversed by them. This takes place even when the 'restrictive system' is adopted, and it takes place with infinitely greater rapidity under the other. To meet this difficulty the roots have been walled in; but this only aggravates the evil, for the moment the roots touch the wall, they descend to the bottom of the border, where they are far from the genial influences of heat and air. Another objection brought against this system is, that one Vine takes much longer to furnish a house with fruit than a number do; but this can be met by planting supernumeraries, to be removed as the permanent one advances. A third objection is, that variety of Grapes is desirable in a vinery, and that this cannot be had where only one Vine is grown. Grafting or inarching will meet this objection; and it is well known that many delicate sorts of Vines grow better on other than on their own roots. Thus it appears that the only serious objection to the one-vine system is the difficulty of getting a border of sufficient scope for the roots of a Vine of such proportion as will fill a good-sized vinery with fruit-bearing wood; but where such can be had, I fully approve of the 'extension system.'"

Vine Restriction.—Having quoted above what Mr. Thomson says on the question of Vine extension, it is but fair to state what he has written on the other side. He observes:—"I know many old Vines that have been cultivated on the 'restrictive system' and that have continued in perfect health for many years. At Oakhill, near London, Mr. Dowding planted a number of vineries forty years ago; I became acquainted with them in 1837, and for twenty subsequent years Mr. Davis, who succeeded Mr. Dowding, produced the most regular and finest crops of Grapes in the kingdom from these same Vines, yet they maintained their health, vigour, and fruitfulness. They were planted one Vine to each rafter, and the system of pruning was the 'close-cutting' one, by which only one eye was left at the base of each lateral. There is an old Vine at Wrotham Park, which is eighty years old, and has all along been cultivated on the 'restrictive system,' for it only clothes two rafters; yet I learn from Mr. Edlington, who now has charge of it, that it is in as full health and vigour as any of the younger Vines, and bears equally fine fruit, and has a stem 1 foot 7 inches in girth, True, the border it grows in has been once renewed in the time. In regard to this old Vine I make the following extract from a letter from Mr. Edlington. 'The old Hamburgh produces fruit equal to the other and younger Vines in the same house. Last year they were truly magnificent, surpassing all other Grapes on the place.' I might go on multiplying instances to prove that Vines neither become unfruitful nor die off in nine years, as Mr. Cannell's did, because they are not allowed to extend the area of their foliage annually, but I think such unnecessary. The fact is, that the Vine is a very docile plant; and if its foliage is kept free from the attacks of insects, if overcropping is avoided, and the wood well ripened,—if the border is made of moderately good materials, and the drainage sufficient,—the Vine will continue in health and vigour for fifty years, under any of those systems of pruning and training that are practised by gardeners of intelligence, whether that be the 'restrictive' and close-pruning system, or the 'extension' and long-spur system. I therefore close this chapter as I began it by saying that there is much truth on both sides of the question."

Æthionema coridifolium.—This is one of the best and sweetest of rock and alpine plants, a bed of it in flower looking like a well-flowered mass of the charming Androsace lanuginosa, and not rising more than 3 inches. The flowers are most abundantly produced, and the plant quite hardy and perennial. Nothing could be more suitable for rockwork, or the front edge of a choice mixed border. It seeds freely, and therefore no one will have any difficulty in procuring it.

Ventilating Furnace Bars.—A company

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has recently been started for the purpose of bringing into practical operation Warriner's regulating furnace bars, which are intended to economise fuel, to prevent the destruction of fire-bars, and to consume smoke. These objects are effected by admitting only such an amount of atmospheric air as the nature of the fire requires, and by distributing the air admitted equally over the whole grate surface. This is done by means of hollow bars, through which all the air required for combustion passes to the fire, the rest of the furnace being made air-tight, and the admission of air to the bars being controlled by a valve. The atmospheric air continually passing through the bars tends to keep them cool, and replaces the oxygen burned out of them, thus preventing their being destroyed so rapidly.

New Gloxinias.—Some extraordinary seedling Gloxinias, as good as they are entirely new in style, have appeared at the Paris Exhibition during the season. They have sprung from a seedling of M. Vallerand's, spotted in a way that reminds one of the Achimenes called Ambroise Verschaffelt, and from this many exquisite varieties have sprung. No choice varieties of Foxglove or Calceolaria, bear such handsome and delicate spotting, while the improvement in form is equally remarkable, the limb of some erect varieties spreading out flat and waxy till the flower looks like a Dipladenia. This is particularly the case with varieties having a stain of rose at the base of each limb segment, and which afterwards spreads out into a rosy suffusion towards the margin. Some varieties have the throat spotted; but generally the throat is pure white, and the limb regularly spotted with rose or lilac; while a few are of a pure waxy white, and with a simple stain of rose, or purple, or blue appearing at the base of each segment of the limb. When they get into commerce it may be expected that an increased stimulus will be given to the culture of the Gloxinia.

Sedum spectabile.—This plant, often called S. Fabaria in gardens, is one of the finest autumn-flowering plants introduced of late years, being fine in flower and handsome in foliage, as well as distinct and perfectly hardy. It may be used as a greenhouse or conservatory pot plant, as a rock plant, or as a first-class border plant. When specimens of it are fully exposed to the sun and air, and well established, which they become in a year or so, it is particularly fine, and flowers till the season is just over, keeping company with the Tritomas. It begins to push up its fat glaucous shoots in the very dawn of spring, and continues in a perfectly presentable condition all through the early summer.

Hybrid Pinks.—Some useful forcing varieties have been raised at Bury St. Edmunds, notably Lord Lyon, which was exhibited last summer by Mr. Clarke, and much admired. One of the first was Claude, a very free-blooming variety, of a pleasing rose colour. The pedigree of Claude gives Anna Boleyn as the seed parent, and a laced show Pink as the pollen parent. From this variety was raised Garibaldi, a much darker shade of colour than Claude, being of a crimson rose; but this flower, though blooming freely, does not force so well as others. From Garibaldi came Lord Lyon, or Clarke's Rose Pink, an intermediate shade of colour between Claude and Garibaldi, but having a strong infusion of rose in the colour, the petals being also handsomely spotted with dark at the base.

Echeveria metallica.—Amongst Mr. Gibson's arrangements in the subtropical garden at Battersea, there has been this season a remarkable group, which was quite startling in its quaintness as well as happy in its effect. It may be described thus:—In the centre of a circular raised bed of moderate diameter, 5 or 6 feet perhaps, stood a large plant of Echeveria metallica, and six smaller ones were placed round about it nearer the margin. Close to the central plant, nicely fitting in beneath its leaves, was a ring of single-stemmed plants of Sempervivum arboreum, other plants of which again alternated with the smaller Echeverias, but stood a little nearer the circumference. These quaint-looking fleshy forms of vegetation, the green of the Sempervivum contrasting strongly with the glaucous coppery-tinted metallic hue of the Echeveria, stood up on little elevations in prominent relief, and the surface of the bed was hollowed out between them, and entirely clothed with the minute close-growing Sedum glaucum. The whole was neatly margined with a broad line of Sempervivum montanum, and outside that with one composed of one of the small, tufted-growing, encrusted Saxifrages. The bed thus filled was most original in its conception, most perfect in design and execution, wanting altogether the elegance we are so apt to demand in flower-garden groups, and yet most fascinating from its entire novelty of character and its striking associations of form and colour. It was the crowning effort of 1867 at Battersea.

Ivy-leaved Pelargoniums.—Mr. Bull has succeeded in raising from seed a very interesting set of these plants, some of which will be acquisitions. The flowers vary in tint from blush white through many shades to deep bright rosy lilac, and are sometimes marked with a bar or flame only along the base of the veins of the upper petals, sometimes with a bright spot in addition. One in particular, the colour of which is a kind of peach blossom hue, with a bright rose spot on the upper petals, and having the base of the lower petals white, is particularly attractive. We have here an indication that the Ivy-leaved section is likely to become an extensive one; a matter of congratulation, seeing that the plants are useful in many ways for decorative gardening.

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CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

Various plants that were struck last spring and have been well grown through the summer, will be in condition to bloom freely in the ensuing winter; and to make room for them, large specimens of *Clerodendrons* and others may be removed to any spare house to winter, where as much heat is kept as will be sufficient for that purpose. *Orchids* that are commencing to push must be potted without delay, and then they must have more heat, so that their growth may proceed; but till there is more light the plants ought not to be stimulated. Plants inclined to rest, should be allowed to do so in the dark weeks which we may naturally expect in this and the next month.

GREENHOUSE.

Before plants are staged for the winter let them have a surfacing of fresh soil; this is very beneficial. Plants exhaust the soil of those constitutional elements which they more especially require and appropriate; it may not be much of any one element, yet it may be one that is never found absent in the most healthy specimens and very likely to be supplied by a top-dressing. Accordingly we generally find that after such a dressing the plants appear invigorated; besides, when the plants are fresh dressed the appearance of the house is greatly improved. *Camellias* are now coming into bloom, and they should be liberally supplied with water, especially those from which early bloom is desired, and for which a little more heat will be necessary. *Heaths* and *Epacrises* should have a house to themselves; but if this cannot be afforded they should be kept at a distance from broad-leaved plants, and more especially from those of an herbaceous nature, and then with abundance of light and air they may succeed pretty well. Avoid at the same time giving them fire heat, unless the temperature is such as to render it absolutely necessary, or to dispel damp arising from continued wet weather or a foggy atmosphere, which is worse for causing damp than heavy rains, which occasionally purify the atmosphere. *Pelargoniums* should be kept dry, with plenty of air, the house kept perfectly clean from decaying leaves, and the plants not stimulated, but never allowed to be too cold at night, nor exposed to draughts of cold air. The leaves of *Cinerarias* are very tender, and are especial favourites of the aphides; to destroy them effectually by one strong fumigation may not be safe for the foliage, therefore it will be better to sicken the pests by a preliminary moderate dose, and renew the attack next night by a somewhat stronger fumigation. To destroy the thrips fumigation should be repeated thrice, at intervals of three days.

CONSERVATORY.

Chrysanthemums, *Calceolarias*, and *Salvias* will contribute to maintaining a splendid show in this structure. The first of these are without fine perfume, or, rather, they possess the contrary; it will be desirable therefore to introduce *Violets*, *Mignonette*, *Aloysia citriodora*, and other fragrant plants. A little fire heat given judiciously will prove beneficial, inasmuch as with it a more free circulation of air may be afforded for ripening the wood before winter.

FORCING.

Grapes are always acceptable, and especially in the early part of the season when the stock of last year's fruit is over or exhausted. To have Grapes, say in April, preparations should now be made, and it will be well to preserve as much as possible the heat remaining in the borders by covering them with a good thickness of leaves, previously to which the soil should be thoroughly moistened below after the crop is gathered. Some recommend to keep the borders as dry as possible all winter; this must be a mistake so far as moisture is concerned, for in the Vine countries rain falls abundantly in winter and in the growing season, and so it might in England beneficially, could we have the moisture without the chilling cold which accompanies melting snow and hail. From these only, Vine borders require protection, and not from rain water, provided the bottom is drained as it ought to be. The roots of Vines do not dislike plenty of moisture, provided it is not stagnant. The Vine prefers the lower slopes of hills where water tends to come down to them, and constantly sinks away from them. When the house is shut up the temperature should be commenced at 45° or 50° at night, and 60° or 65° by day. At first, probably, the temperature of the air may be sufficient, or at all events very little fire heat need be applied. A safe rule in forcing is to commence very moderately, and increase steadily but slowly. *Pine Apples.*—Maintain a bottom heat of 75° to 80°; top heat, 65° to 70°; fruiting plants, 75°. Whilst swelling afford moisture by steam. Succession plants should have a temperature not lower than 60°, even although the weather be dark and dull; for although it is desirable that the temperature and amount of light should correspond, yet under no circumstances should Pine plants be exposed to a low temperature, for it is not natural to them, and they must suffer. *Figs* not in vegetation may be kept in any shed or place where the temperature will not fall below 40°. *Strawberries.*—The pots should be laid on their sides in times of drenching rain. *Asparagus.*—Finer

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shoots are obtained from established plants forced without removal than from plants taken up and planted in frames. It is necessary to dig a trench on each side of the bed so as to interfere as little with the roots as possible, and the bottom of the trench should be as low as the extremities of the roots. This trench will include a considerable mass of soil, not easy to heat throughout. The introduction of heat will be facilitated by piercing holes in the bed with a smooth half-inch iron rod, some of the holes slanting downwards, others horizontally or nearly so; by these the heat of the fermenting manure will be rapidly conducted throughout the mass, and fine shoots will soon result. *Cucumbers.*—Plant, and maintain a bottom heat of 75°; top heat about the same, but it may rise to 80° with sun heat. Let the water used be about 75°.

PITS AND FRAMES.

Introduce *Rhododendrons*, *Roses*, *Persian Lilacs*, *Bulbs*, &c., for forcing. In moving any plants either into these structures or out of them, see that they are perfectly clean, and arrange them so that those requiring similar treatment may be classed together; thus the treatment which may be suitable for any one in a compartment will not be unsuitable for the whole.

KITCHEN GARDEN.

Crops, of course, must be cleared off as they are fit or required. Then comes the question, What is the most suitable crop to follow? That being settled, we come to the simple consideration of How must the ground be now treated for that crop—trenched deeply or shallow—merely dug over, or ridged to expose the largest possible surface to the weather if its character is too tenacious? By acting from such considerations the earth will be subjected to the agencies of the atmosphere, so as to yield up its mineral stores to enrich the ensuing crop. Dress *Artichokes*; mulch them with litter, fern, or leaves to protect them from frost, packing closely round the plants, but not over their hearts. Cut down the stalks of *Asparagus*, and clean the beds from weeds. Protect and earth up *Cardoons*. Earth up *Celery*, closing the earth round the plants by hand, leaving room amongst the stalks for the tender hearts to grow up and be subsequently blanched. Remove some *Endive* from borders, and plant on a dry slope. Make a sowing of early *Peas* (Dillistone's or Sangster's); also a small sowing of early Mazagan *Beans*.

FRUIT GARDEN.

As soon as the leaves have fallen most fruit trees may be planted. Let the holes for the reception of the roots be dug wider than the extent of the roots, as wide at bottom as at top, and quite as deep at the sides as in the middle of the hole. Holes for trees have been seen formed with a concavity like a basin, the roots tending up the sides. The bottom of the hole should be formed with a convexity, on which the roots should be regularly spread as on the bottom of a basin inverted. When small fibres surround each other they ultimately become a strong mass when the roots grow large. As a general rule let the transplanted tree be placed as deep in the ground as it was before removal. Young plantations of fruit trees are generally apt to grow luxuriously to wood. The French have a true saying, "We must have wood before we can have fruit," but in our climate a check to luxuriousness is beneficial, for otherwise the tendency to grow to wood prevents the formation of fruit buds, so that many years often elapse before there is any return in the way of fruit, and under unskilful treatment the tree assumes a rambling unsymmetrical growth, which ultimately requires the amputation of larger branches than is consistent with a sound constitution, and an equal distribution of the sap—matters which should never be lost sight of. Frequently large roots reciprocate with large branches, and when the roots are reduced, the branches can be proportionally so, and thus an equality of vigour in the branches will be attained, and a uniformity of fruitful produce will result. Beyond this, root-pruning should not be carried, for nothing more is required by the operation. When trees are removed or transplanted they should be thoroughly watered to close in the particles of soil among the fibres, but no more water than this will be necessary at this season. *Pruning* all hardy fruit trees may be immediately commenced. Let protection be prepared for *Fig* trees.

FLOWER GARDEN.

Roses and all other deciduous shrubs may be planted in this month. Take up *Dahlias* on a dry day, previously cutting the stems to within 6 or 8 inches of the ground; store in a cool dry place secure from frost. *Fuchsia globosa* and any of the more hardy kinds may be kept in the ground if well mulched. Fibrous-rooted *Perennials* planted now, produce larger flowers than if the planting were deferred till spring. Plant hardy bulbs. Keep the lawn and walks well swept and rolled; and now is a good time to make any alteration in the ground.

FLORISTS' FLOWERS.

Auriculas.—Take care not to over-water, keep the plants clean and clear from decayed foliage. *Carnations and Picotees.*—Give plenty of air, and water very moderately. *Hollyhocks.*—Strike cuttings; repot those struck in the summer. *Pansies.*—Grow as hardy as possible, keeping off the lights when the weather it fine. *Pinks.*—Examine the plants for grubs. Stir to loosen the surface of the beds when is is not wet. *Tulips.*—Plant the first favourable opportunity when the soil is in good working order, in a dry day; use fine sandy soil about the roots.

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Camellia Lavinia Maggi Rosea

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CAMELLIA CONTESSA LAVINIA MAGGI ROSEA.

WITH AN ILLUSTRATION.

We are indebted to Mr. Bull for the opportunity of figuring this very beautiful new Camellia, a self-coloured sport, we believe, from the favourite striped variety to which the name was first applied, and which is one of the finest of modern varieties. The form now figured was shown in great beauty by Mr. Bull at one of the Regent's Park shows of last spring, and was a source of very great attraction. In the general character of the plant, and in the build of the flower, it resembles the striped kind, but the colour is throughout of a rich and peculiarly bright carmine rose—more brilliant, as it appeared to us, than that of any other variety of this class of colour. When to the size and quality of flower presented by the original Lavinia Maggi, this lovely and brilliant hue is superadded, no further praise is needed. Without doubt it will take rank as one of the finest varieties in cultivation. M.

COOL ORCHIDS.

It is interesting to know that many of our Cool Orchids will not only live in the open air in summer, but will actually thrive and grow. This autumn, at the latter end of September, I visited the nursery of Messrs. Backhouse & Son, of York, and there I saw hung on an iron rail, in a very sheltered and partially shaded spot, rows of Orchids fastened on little blocks of wood, and I must confess I was rather surprised to see these interesting plants growing so far north in the open air. They had been placed out at the latter end of June, and many of them had made such growths as would have perfectly satisfied an Orchid grower if produced in a house. I was informed that no protection whatever had been used. Amongst the most promising were the well-known Lælias—autumnalis, furfuracea, majalis, and superbiens. Epidendrum erubescens was also doing well, and E. vitellinum was in flower. Barkeria Skinneri and Dendrobium speciosum were looking well, and a variety of what is supposed to be Odontoglossum ramosissimum had made fine growths, and was rooting freely. Odontoglossum grande was also amongst the number, but had not apparently made much progress. This, with several others, was under the shade of some Fir trees, and placed in zinc pans containing water to prevent slugs and other vermin getting to them. The bottom of the pots was placed just above the water level.

Although perhaps there is not much advantage in growing Orchids out of doors, still it is highly interesting to know that they will not only exist, but thrive under such treatment. I believe Mr. Standish has treated Epidendrum erubescens much in the same way, and it was six weeks ago showing flower finely. It is quite a common practice to place Dendrobium speciosum and Cypripedium insigne out during the summer months with the greenhouse plants, and with very good results; and when we are repeatedly told that many of these plants are gathered from localities where frost occurs, there can be no reason why such out-door treatment should act injuriously.

In growing Cool Orchids in houses, I find that some species which grow perfectly well, require to be moved into a warmer atmosphere to perfect their flowers. This is particularly the case with Oncidium flexuosum; it grows luxuriantly, but the flower stems prove abortive until moved into heat,

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when they come out in flower perfectly. Some plants of imported Lælias, in a cold house, were going quite brown at the tops, and appeared to be dying off, but after removing them into heat they are now showing their flowers freely. I find Brasavola venusta very much the same; the flower scape quite damping off in a cool house, which, had it been removed into heat when first showing bloom, I have no doubt would not have occurred. Is this not to be accounted for in this way, that the plants make their growth during the rainy season, when the temperature must be much lower than during the fine season which succeeds it, and which is their period of flowering?

GEORGE EYLES.

ON EXPOSING VINES DURING THE WINTER.

IN former days the practice of exposing Vines during the winter months was very common. Sometimes it was done from necessity, either through Pine plants being grown in the same house, or through the house being required for some other purpose, such as forcing Strawberries, &c., whilst the Vines were at rest; but it was also not unfrequently done under the erroneous impression that exposure was beneficial to the Vines. It was a practice in those days by no means uncommon to remove the whole of the lights from the vineries and Peach-houses for several months. The consequence of this practice was, that in severe winters the buds and wood were greatly injured, and sometimes killed; and after the lights were put on, and forcing commenced, the buds on Peach trees would fall off instead of swelling, and young shoots and large branches would not unfrequently die off; while Vines, even with almost constant steaming, syringing, and forcing, could scarcely be got to break, and when any of them broke the shoots were so weak they would not stand the least sunshine, and shading—yes, shading—was had recourse to. If they showed any bunches, they not unfrequently died off, and the Vines eventually had oftentimes to be removed, and fresh ones planted in their place. Most gardeners of any lengthened experience will have seen instances of this kind.

The practice of exposing Vines in these days, even, is not altogether done away with; but it is now done more from necessity than choice, through the houses being required for other purposes. Vines that are grown under glass will only bear a certain degree of cold, and to expose them to the rigour of our winters without any kind of protection, is to run the risk of having them seriously injured, or, if very severe frost should set in, to have them completely ruined. When it becomes necessary to take Vines out of a house, they should be protected by some means from the severity of the winter. If there be no special provision made for this, such as double sashes in front, &c., then they should be well covered up with mats or straw.

I have known several instances of Vines being greatly injured by being exposed to the rigours of winter. One case that I saw some years ago—that of a house of young Vines completely ruined by a severe frost, struck me very forcibly at the time, and has convinced me of the erroneousness of exposing Vines to the severity of winter. I then resolved that I would never expose Vines to the rigours of winter; and that if compelled to take them out of the houses, I would adopt the precaution to protect them well whilst they were out. From what I have seen myself, and from the numbers of queries that are annually sent to the gardening periodicals about Vines not breaking, breaking badly, &c., I am convinced a great

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amount of mischief is done to Vines by exposing them to the weather. "To be forewarned is to be forearmed;" and as the season is at hand when Vines are generally exposed, I take this opportunity to impress upon any one who may be about to do so, the necessity of well protecting them whilst out of doors, either by mats, straw, or other material. By so doing, they will have the satisfaction of saving their Vines from injury, and of seeing them break freely and strongly; and with proper attention they will be rewarded with crops of fine Grapes.

Stourton. M. SAUL.

VIOLA CORNUTA.

Now that this popular bedding plant has been thoroughly tried in many places throughout the summer, a few remarks on the way it has behaved here may be of interest to the readers of the FLORIST AND POMOLOGIST. I have grown both the so-called varieties, Mauve Queen and Purple Queen, in immense quantities, and I have been unable to see any difference between them. It is said that one variety flowers more freely than the other; but this can only be the case when the plants are younger than the others, and in richer and damper soil. If both varieties are planted at the same time in the spring, and in the same soil, I think that little difference will be found throughout the summer as regards profuseness of bloom. I have thousands of seedlings, raised from Purple Queen, exactly of the same colour as Mauve Queen, and it would take a very keen eye to detect any difference in the foliage or style of growth.

The Viola cornuta is by no means a continuous flowerer through the summer, especially on warm light soils. The best way to manage it is to have a stock of cuttings planted behind a north wall at two or three different periods; these can be taken up with balls of earth when well rooted, and planted to keep up a fine succession of flowers. In mixtures, when shaded with other plants, it will keep up a pleasing show of bloom all the summer, and autumn too, if the soil is rich. From its beautiful neutral tint of colour, it harmonises with many plants in mixtures, such as Mangles' Variegated and Beaton's Variegated Nosegay Pelargoniums. I have a variegated sport of Imperial Crimson Nosegay, which likewise makes a very fine small bed when mixed plant for plant with Viola cornuta, and edged with Viola lutea.

I find it necessary to treat Viola cornuta like Lobelia speciosa—that is, to mark the best varieties, and only take cuttings from these. If the plants are raised from seeds there will be such a variety of colours amongst them as to spoil the effect, in masses or ribbon borders. Viola lutea promises with me to be a great acquisition for small beds and dwarf edgings.

Welbeck. WILLIAM TILLERY.

AMARYLLIS ALBERTI.

THE gorgeous varieties of the Hippeastrum group of Amaryllis seem to be attracting more of the public attention they so well deserve, than has been the case for some years past. We see them more frequently at exhibitions; we hear of more new varieties being brought out; and we have good reason to believe that their value as decorative plants, is fully appreciated in many private establishments. We have ourselves done what we could to help forward this current of opinion, by figuring in our present

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volume some of the choicest of Messrs. Garaway's famous breed, and the strikingly novel species which Messrs. Veitch has imported. Through the kindness of Messrs. E. G. Henderson & Son we are enabled to direct special attention to another remarkably beautiful plant of the same family, which is interesting on account of its producing double flowers.

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This *Amaryllis* (Hippeastrum) *Alberti* was found in a cultivated state in Cuba, by M. Albert Wagner, and was by him sent to his father, M. Wagner, of Leipsic, by whom the stock appears to have been transferred to M. Laurentius. It has altogether the habit of A. equestris, its peculiarity residing in its flowers, which are full double, consisting of from thirty to forty perianth segments or petals. They are described as measuring as much as 6 inches in diameter, and are of a bright orange red colour, becoming yellowish towards the base of the segments. Another double-flowered Amaryllis, called fulgida, which has but two rows of petals, is altogether eclipsed by this beautiful and interesting novelty.

M.

ROOTS FROM VINE STEMS.

It is written that "In the multitude of councillors there is wisdom;" so likewise from the multitude of opinions on this vexed question something like a reliable theory may be eliminated. I am inclined to the belief that the farther we diverge from the conclusion arrived at by Dr. Lindley, as set forth in his *Theory of Horticulture*, the wider shall we be of the mark. So far as my own experience goes, and it has been obtained under widely differing circumstances of climate and soil, I am decidedly of opinion that one of the primary causes which induce the emission of roots from Vine stems is the inequality of the temperature between the medium in which the roots and the branches are placed; and that this tendency is greatly increased or lessened by the condition of the soil of which the border is composed. The healthy action of the roots below the surface will certainly keep down the tendency to emit stem roots, unless the interior temperature is kept very high and very moist. If the soil of the border is not in a condition for the roots to permeate freely, or, if permeating freely, they do not find a sufficient amount of suitable food to meet the demand which is made upon them by the branches—which demand, be it observed, becomes greatly accelerated soon after the fruit is set—and the stem roots begin to be put forth, a strong connection is shown between poverty of supply and increased demand. This is a very natural consequence, for the young growth, feeling the want of more nourishment than the roots proper send up, strives by putting in action its dormant roots, which are situated at every joint, to feed upon the moist and genial atmosphere by which it is surrounded.

Vines which grow more naturally, which are not forced, and to which, consequently, a very free ventilation is applied, rarely, if ever, send out stem roots; first, because there is no artificially heated atmosphere in the interior of the structure, and next, because the temperature of the internal and external atmosphere and that of the border are more nearly equalised, the consequence of which is, that there is a more simultaneous action between all those influences which bear upon the growth of the tree, whether for extension or perfecting the maturity of the fruit. Hence we may reasonably conclude that we are right in attributing unequal action between root and branch, as the first great moving cause of the tendency on the part of the Vine to emit roots from the stem; and closely following on its heels is a stagnant, over-heated atmosphere, highly charged with moisture. If it were possible to keep the interior atmosphere of the house always in motion, and constantly changing, we should hear nothing of stem roots. For example, as soon as we begin to apply a more liberal ventilation

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to enable us to colour the fruit of early forced Vines, the stem roots dry up and become inactive, because they have nothing to feed upon.

I have often had occasion to observe that there is a wonderful analogy between many of the habits of plants and those of animals, and it is very observable in the present instance. Man is a feeding animal, but we should laugh at the idea of his finding comfort in a meal taken in the open air in a gale of wind; he rather seeks to satisfy his wants in a quiet and undisturbed state of mind and body. Animals which prey on each other, drag their food to their haunts, or to some other retired place, and feed in quietude; the ruminating animals roam for food, but lie down to chew the cud, and enjoy it in peace. So likewise the stems of Vines, when placed in a heated, quiet, unventilated atmosphere, immediately set about feeding upon it, the stem roots being thrust out as the readiest means of doing so; but send a brisk ventilation playing through them, keep all superabundant foliage picked off, and let in plenty of light, and the tendency to produce stem roots will be reduced to a minimum, so far as interior management is concerned. In early forcing, however, it is not possible, under existing systems of ventilation, to keep up a constant agitation and change of atmosphere, when there are cutting winds abroad, and the outside temperature is several degrees below freezing point; we must therefore put up with a close, quiet atmosphere sometimes for lengthened periods, and seek to remedy the evil (if indeed it be an evil), by striving to correct some of the other causes which are likely to induce stem roots to be thrown out. The principal of these, as already stated, is the inequality of temperature between the earth of the border and the interior atmosphere of the house. But this opens up another wide field of observation.

Redleaf. JOHN COX.

I FIND that Mr. Earley has made some remarks (see p. 242), on my brief observations at p. 224, written in conformity with Mr. Cramb's previous paper on the cause of roots on Vine stems. He differs from both of us, and leans to the theory that these abnormal roots are merely the substitutes that sickly Vines put forth, in place of the natural roots that have perished. Against this, he states that I "affirm that strength and vigour may be the progenitors of these roots," whereas my statement went no further than that "weak Vines are less liable to do so than strong ones." I now affirm that the large stems of old healthy Vines are most apt to produce roots, owing to their greater shade, and their rougher bark which holds damp longer than those of younger growth with smoother bark. In fact, there need be no doubt or mystery respecting the cause of such roots. One need not refer to the famed branch-rooting Banyan tree for an excellent example, when our common Bramble supplies one. In dull hot weather we may see plenty of "air roots" on healthy Bramble stems, in the shade, especially on those creeping amongst dank grass, while there are none where they are exposed to the light. But respecting Vines, Mr. E., to favour his opinion, says that "aged Vines are not always vigorous at the root." True; but does not this apply equally to young ones? He also remarks that "Nature is no sloth; we often mistake her way to an end." If this means the beginning or cause of "air roots," I refer him again to the Bramble bush, whose roots may become ground ones, and so would those of the Vine in a wild state, thus forming a jungle or thicket like the Bramble.

I now touch Mr. E.'s chief prop, which is that of there being "air roots"

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on a sickly [?] Vine in a house at Chiswick, when there are none on the healthy ones. In this there is nothing remarkable, nor in the manner in which the roots grew. Such abnormal growth may happen more or less, according to the dampness of the house. And as to "why had not this humidity induced this display of roots at an earlier period?" it is because there was a difference in the state of the weather, both outside and inside the house, at that time, and also much less shade of the leaves, which, above all things, tends to beget "air roots." Indeed these never appear without shade; and that of the strong Vines might have overshadowed the weak one, and thus made it sickly also. But the person who had the care of the Vines should be the best judge of what I have just stated. Likewise, he may have remarked that there are seldom "air roots" on Vines in dry houses infested by the red spider, while in damp houses, kept so to check this pest, whether they be weak or strong, they are seldom without them. And again, he may have remembered how the stems of the strong Vines were situated, both as regards light and damp. This reminds me that some time back a correspondent of one of the garden newspapers, inquired with some alarm, the cause of roots on his Vines; and he was answered I think by Mr. Fish, "Your Vines are all right; go on with the moist heat."

Cossey Park. J. WIGHTON.

THE PAXTON HOTHOUSES.

ALLUSION has been made in our present volume to one form of patent hothouse—that invented by Mr. Beard. We now invite attention to another patented form of structure, for which the gardening world is indebted to the ingenuity of the late Sir Joseph Paxton, and which was contrived by him specially to secure, as it most amply does, the two great desiderata of cheapness and portability. These Paxton houses are manufactured by Messrs. Hereman & Morton, and both their construction and adaptations are fully explained in a useful little handbook,* of which Mr. Hereman is the author. We cannot do better, in order to give our readers a clear idea of their simplicity, than to quote Mr. Hereman's description, which, by his courtesy, we are also enabled to illustrate:—

"The patent roof is composed of strong sashes from 8 to 16 ft. long, by about 4 ft. 8 in. wide, so connected by iron bars as to leave a space of 9 in. between them for ventilation, which spaces are covered by narrow sashes (divided in halves) hinged to one side, thus forming ventilators alternately with the large sashes, and opening by means of a stay pushed up from the inside, either the upper half separately, or when joined by the catch to the lower half, as one long ventilator. This will be understood on reference to the figure, which represents the upper-half ventilator open to full extent, and the lower-half closed; the iron bar connecting large sashes (*a*); the stay (*b*), by which the ventilator can be opened quite wide, or with the smallest aperture on one side only; and the catch (*c*), for joining the two portions as one. These ventilators may be hinged on right and left sides alternately for lean-to roofs, to avoid the entrance of a direct current of air—*i.e.*, when the wind is east opening those to the west, and *vice versâ*; in span roofs they are reversed on opposite sides of the house. It will be seen that the side stiles of sashes are continued 4 inches as horns to rest in the water gutter at the foot. The gutter (*d*), of wood or iron, continues from end to end of the roof, being supported by chairs or saddles (*e*) under ventilators, and at ends set upon piers or walls forming the foundation of the house. The dotted line under the open ventilator shows the course of a groove in the weather-board fitted under the cap, and down the upper edge of large sash stiles to conduct any drip from the ventilator or cap to the water

* *A Handbook of Vine and Fruit Tree Cultivation under Glass, with a Description of Sir Joseph Paxton's Hothouses.* By Samuel Hereman. 3rd edition. London: 7, Pall Mall, East, and 171, Fleet Street.

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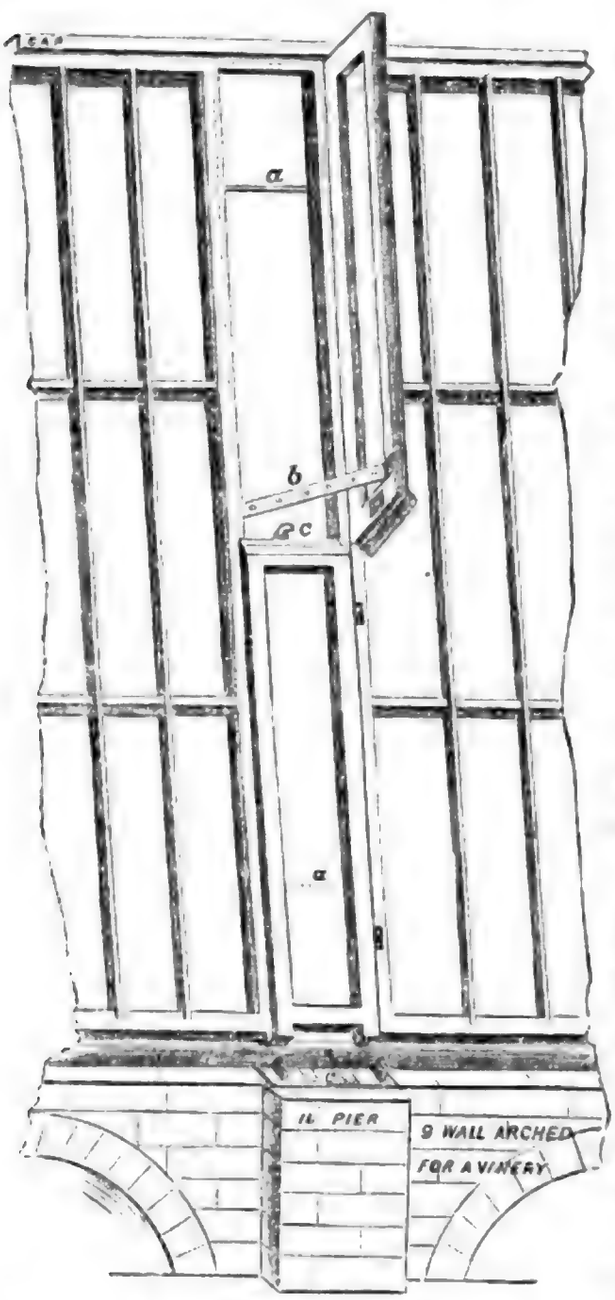
gutter. The sashes rest against or upon a plate of wood attached to the back wall, to form lean-to roofs, with the cap completing the work fitted to top of wall, or under its coping. To form span-roofs, the large sashes are coupled together by strong hinges at top, which will allow them to be at any angle, to which the gutters can be arranged, and the ends made suitable to complete the structure. The cap is fixed upon the span-roof in the form of an inverted V."



The sashes, which are made of certain fixed dimensions, with the ends, and the gutters, with their supports, which latter may be either posts or piers, form the whole material of a Paxton House. It is obvious, therefore, that it can be set up and taken down and removed with very little trouble, and this is in fact its chief advantage; though, in addition, as there is no high or elaborate finish, though the workmanship is sound and good, the cost is reduced to a minimum. The gutters, of iron or wood, may be set on piers with arched walls between, as shown in the figure, but the most economical plan is to fill up between the supports with a bank of earth.

To describe the various forms in which these sashes can be put together would occupy too much of our space, and is the less necessary, as the reader may be referred to the *Handbook* itself, which is full of useful information, and is well worth perusal. The cultural directions which occupy the principal part of its pages, are indeed both terse and practical, and are sufficiently ample to guide the labours of the intelligent cultivator to a successful issue.

As one illustration of the many purposes to which these Paxton Houses may be adapted, we give a view of the large winter garden which has been erected for R. L. Chance, Esq., Summerfield House, Birmingham. This consists of span-roofed houses, constructed with 14-ft. sashes, and so arranged as, with lean-to roofs against the walls, and walks of neat paving tiles, to form an agreeable promenade of several hundred feet in length. A greater amount of enjoyment than most people imagine may be derived from structures of this kind, even though they are not artificially heated The temperature under a glass roof is at least 5° more than that of the exterior atmosphere, and many of our most beautiful flowers, as Camellias

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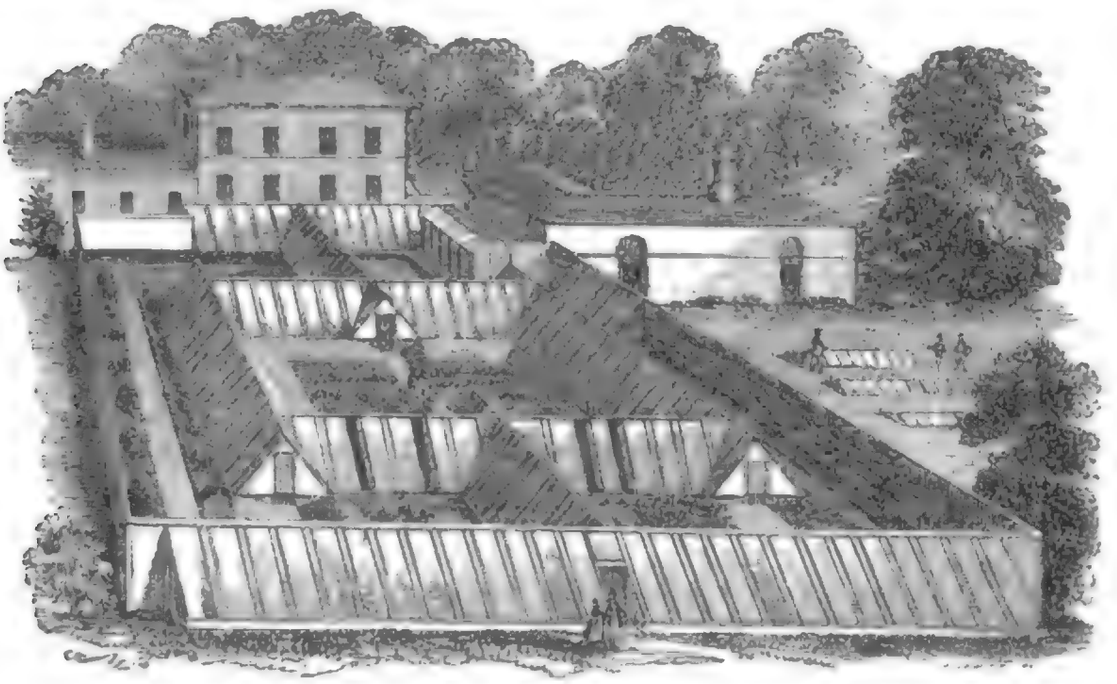
Indian Rhododendrons, China and Tea Roses, and hosts of other half hardy things, thrive admirably under such conditions, while crops of the choice



varieties of the hardier kinds of fruits, may, with judicious treatment, be considered as ensured by means of such protection.

M.

FRASER'S BROAD-LEAVED ENDIVE.

This is the third season of my growing the above Endive, and I am more than ever convinced that those who have to supply a good salad all through the winter months cannot grow a better variety, if they get it true. It is evidently quite distinct from the Batavian, and far superior to that kind. We have plants here measuring 2 feet across. These we tie up to blanch, and when well blanched it is difficult to distinguish them from a well-grown Lettuce. I secured my seed from Mr. Veitch, and have discarded all other kinds for it. I also find it, on the whole, hardier than other varieties.

Wrotham Park. John Edlington.

THE NEW BEDDING LOBELIAS.

An unusual number of these have appeared at the various horticultural exhibitions in the metropolis during the past summer, as candidates for popular favour. Of some of these it might be said that they came like shadows, and in like manner departed. Some others are much more lasting in their character, and will be heard of in the flower garden during the coming summer as decorative agents of no common order. Of these new kinds the following three have received first-class certificates:—*Rosy Gem* (Bull), a variety in the way of Carter's Beauty of Ravensbourne, but with larger flowers, which are of a rosy lilac hue, with a white centre. It is a tall-growing kind, and was shown of a spare habit; but of its adaptability

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as a bedder no proof has been afforded. *Lee's Dwarf Blue* (W. Lee), has a very dwarf-growing, robust habit, producing great quantities of flowers of a bright deep blue, with a white centre. Its dwarf habit and free properties promise for it a great run as a bedding kind. *Little Gem* (Bowie), is a very dwarf and compact strong-growing variety of L. Paxtoniana, the flowers being white, broadly edged with blue. The specimens of this variety were shown so late as the middle of October, and at that late season were in excellent condition. This stamps it as a continuous bloomer. A second-class certificate was awarded to *Blue Tom Thumb* (R. Dean), a very dwarf and erect-blooming kind, the flower being of a pale blue hue, with a white centre; it blooms profusely and continuously. It has been used as a bedding variety during the past summer with great success.

Other new kinds are *Ultramarine* (W. Lee), dark blue with white centre, a strong-growing seedling from L. Paxtoniana, and a questionable acquisition because wanting distinctness; *Fawn* (W. Lee), a variety with pale lilac flowers, but of a loose habit; and *Sparkler* (J. & C. Lee), deep blue with white centre, showy-looking, but of a very straggling habit. Some few others are not worthy a notice of any kind.

Quo.

AËRIAL ROOTS.

Mr. William Earley has remarked (p. 242), that he was puzzled at seeing one of the Vines at Chiswick densely clothed with aërial roots, whilst others, apparently under precisely the same circumstances, were not. Perhaps it will assist Mr. Earley a little when I tell him, not of a theory, but of an example of a like kind. The Vine is notorious for striking root freely, and in the wild state this peculiarity would give it another string to its bow, in the way of propagating itself by layers, as well as by seeds. Now, in studying the nature of certain plants we have frequently to consider other plants having the same style of conformation and habit; and although we cannot say that Nature works invariably by the same rules, yet it is always agreeable to the person who is looking out for a proof of his particular theory, to find it already accomplished in one of Nature's well-known specimens. In the whole round of propagating there is not a more extraordinary example than that of the common Ivy (Hedera Helix). It grows from seeds freely, and every little bit of its stem will push out roots, and cling like a leech to wall or rock; but when it has once got the upper hand, and shows flower and fruit, the branch that has done this deed, creeps and clings no longer—it stands out boldly as a bush, and cuttings of this bush will form bushes too, mushroom-shaped, and behave themselves like any other upright evergreen shrub.

Many years ago, when I made it my business to hunt up the history of plants, flowers, and fruits, I called at Wrotham Park, then the residence of George Byng, Esq., and on the lawn there I saw a neat, compact evergreen shrub, which, I was ashamed to own, was quite beyond my acquaintance, and I had to ask, with all humility, its name and history. It was the common Ivy grown like a tree.

Now, there may be some difficulty in blaming the Vine for playing the same trick upon the propagator; but when we see the various styles of buds that propagators have to deal with, it is well worth while to inquire from what part of the Vine the eye came that gave birth to the Chiswick plant—whether from a genuine fruit spur upon the close system, or from a long

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rambling rod upon the extension system. We see the Ivy at one period of its history with a rooting stem exactly like that of the Vine in question, whilst at another the bark on its stem is smooth. The bud from that part of the Ivy which creeps and clings produces one style of plant, and the bud from that part of the Ivy which flowers and fruits, produces a plant of quite another style.

Salford. ALEXANDER FORSYTH.

A FEW WORDS ABOUT BEDDING PLANTS.

A FEW words about bedding plants, at the close of another season, may not be altogether out of place. Bedding plants had a bad start this season. The frosts that prevailed in the latter part of May and early part of June at nights, and the dry, parched atmosphere during the days, were very trying to plants newly "bedded out." Still, notwithstanding this drawback, the season has been on the whole a favourable one—the latter part particularly so; and as a consequence flower gardens have been most beautiful during the months of August, September, and October, Verbenas, Calceolarias, Pelargoniums, and many other things looking very fresh and gay up to the present time (Nov. 11).

Pelargoniums are fast driving most other plants out of the flower garden. Whether this is right or wrong I will not stop now to inquire, but that it is a fact there can be no doubt. Pelargoniums of all kinds have done well this season; we have now a great variety of them, some as remarkable for beauty of foliage as others are for beauty and brilliancy of flower. We cannot, therefore, be surprised to find them so largely used in decorating the flower garden, especially when we consider how well adapted they are for this purpose. By putting out good plants and planting thickly, they make the flower garden look gay and beautiful at once, and continue to do so until destroyed by the autumn frosts; they are, moreover, less affected by change of weather than most other kinds of bedding plants. Some experience is required in preparing the beds for the different kinds, as one mode of treatment would not answer for all. The beds for the stronger-growing kinds of Zonal and Plain-leaved varieties should not be made too rich when masses of flowers are required; they should, however, be of good depth to prevent the plants suffering in dry weather; but if the soil be of a tolerable quality no manure should be added. For most of the variegated sorts the beds can hardly be made too rich. Some of the finest beds of Mrs. Pollock that I have seen this season had a considerable quantity of well-rotted manure in them. For the more delicate-growing kinds, instead of using so much manure, I would advise some peat or leaf soil. The beds for these and all kinds of Pelargoniums should be of good depth well drained. Plants growing in properly prepared beds look very different from the same kinds growing in shallow beds of poor light soil. I strongly recommend depth of soil in the beds, and planting deeply also; then the roots soon get down, and the plants, so far from suffering in hot weather, grow and flower all the better for it. Pelargoniums are not subject to the attacks of insects, neither do they die off, leaving blanks in the beds, but with care they soon cover the beds, and look beautiful the whole of the season. The only attention they require is in picking off decayed flowers and leaves.

Calceolarias and Verbenas made slow progress at first, but after they began to grow they came on rapidly, and have been very fine. Lobelias have

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grown and flowered well. Perilla nankinensis is one of the most useful and accommodating plants we have. It is easily raised from seed in spring, without having the trouble to winter it; it will grow in almost any soil or situation; and, when made proper use of, is most effective. If Coleus Verschaffelti only grew as freely, and was as accommodating, how largely it would be used! Let us hope we may soon get a plant with as beautiful foliage as the Coleus that will grow as freely as Perilla. Of the Coleus itself I will only say that it will not do much good out of doors, except in very favourable places, and there only for a short period during the height of the summer. After repeated trials with the Amaranthus I have given it up also. Of the Iresine I thought very favourably at one time, but it has not come up to my expectations this season, though it had every chance to do well, as the plants were good, and planted out nearly the last among the bedding plants. It suffered much from the hot sun in June, and never regained its colour properly, so I fear its days are numbered as an out-door plant; it is a useful pot plant for in-doors. Some kinds of Beet are very effective, but I think they are quite out of place in the flower garden.

I must see Viola cornuta do better than I have yet seen before I can say much for it. Dactylis glomerata variegata is a great acquisition to our bedding plants; it is so useful and effective in ribbon borders, and for edgings of large beds. Most of our other ordinary bedding plants not mentioned have done well. Flower gardens, on the whole, never looked better than they have this season, and this is from the great variety of beautiful plants now at the command of gardeners for bedding purposes. There is still room for more, and no doubt they will be forthcoming in due time.

Stourton. M. Saul.

HYACINTH VASES.

Those who remember the tall, slim, tottering glasses which a few years since were used for the growth of Hyacinths in rooms, will admit that the introduction of Hyacinth glasses of Tye's pattern was a very great change for the better. Elegant in shape, and not liable to topple over with the weight of the plant, they at once recommended themselves to popular favour; and the various qualities which are provided—plain, slightly decorated, or of the most *recherché* character, are such as to have enabled them to make their way alike into the humble sitting-room, and the fashionable parlour or drawing-room.

These, however, have been literally Hyacinth "glasses," being manufactured of glass. Latterly there has been brought into use another material —a fine kind of potteryware, having a dull tone of colour, which many per-

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sons will, doubtless, prefer to the more brilliant tints of the glass vases. This is called Hooper's Etruscan Pottery, and by the courtesy of Messrs. Hooper & Co. we are enabled to annex illustrations of some of the forms

in which it is made up, the most generally useful being that which resembles Tye's glasses. When first brought into use this ware had the objectionable quality of filtering the water contained in it, the evaporation, of course, having a chilling influence on the roots of the plants, and the percolation which was constantly going on leaving a white chalky stain on the outer surface. This has now been remedied by glazing the inside of the vase, which, when properly done, prevents the percolation; but it is neces-

sary that the operation should be done carefully and thoroughly, as we learn that some of the earlier glazed examples are not free from the discolouration alluded to.

The vendors claim for these Etruscan Vases several advantages. Thus they say that "Careful observation during the past two seasons, of the cultivation of Hyacinths in glasses and in our Vases, has proved without

question the advantage of the latter; the flowers were finer, the foliage more healthy, and the plants altogether more vigorous. This unexpected success is probably due to the equability of the temperature at which the water is maintained, and other advantages which the earthenware has over the glass, favourable to the health and growth of the roots. Whatever may be the cause, the fact remains indisputable, and should lead to the universal adoption of the Etruscan Vases for the in-door growth of Hyacinths." Setting aside the supposed greater equability of temperature of water contained in these Vases, over those made of glass, we may safely suggest their use on grounds altogether apart from this question. Their sober tone of colouring—a kind of dull Venetian red with unobtrusive black figures and ornamentations—contrasts better with the plants growing in them, than the gayer tints common to glass vases, and this is, we think, a sufficient recommendation. They are made of other colours, as black and blue, and with various kinds of ornamentation; but the Venetian red pattern is, in our opinion, much to be preferred. M.

NOVELTIES, &c., AT FLOWER SHOWS.

At this season of the year opportunities for seeing novelties are few, and the Meetings of the Floral Committee are held only once a-month during the two last and the two first months of the year. At the Meeting of the Committee on the 5th of November, a first-class certificate was awarded to Messrs. Veitch & Sons for *Aphelandra Roezlii*, a small plant of which was shown, having a rich-looking spike of orange red flowers, very bright and striking. The leafstalks have a peculiar tendency to twist, and the leaves are covered with a kind of whitish glaze; but the flowers are good, though the plant itself was but small. The same award was made to *Cattleya maxima*, the labellum of which is mottled with rosy lilac and white, the flowers very pretty and distinct; to *Lælia præstans*, a very dwarf-growing and handsome flower of a rich reddish purple, the segments suffused with bright lilac; and to *Dracæna Macleayii* with shining foliage of a greenish dark bronzy hue, very distinct and striking. The same exhibitors had *Dendrobium bigibbum*, a pretty Australian species, with finely formed purplish flowers; *Pandanus gramineus*, a handsome ornamental-leaved plant; the fine *Cattleya exoniensis*, the labellum of which is very richly coloured; the curious *Urceolina aurea*, with several heads of bloom; some fine varieties of *Lycaste Skinneri*, and a large plant of the red-foliaged *Acalyphus tricolor* from the South Sea Islands.

Quite a bright feature of this small exhibition was a group of *Variegated Zonal Pelargoniums* from Messrs. F. & A. Smith, of Dulwich. The most noticeable were *Sultan*, a new and finely marked golden-edged variety, and *Impératrice Eugénie* and *Queen Victoria*, two very fine silver-edged varieties with highly coloured bright rosy pink zones. The foliage of all these plants was well-coloured, though all the kinds will not colour so well as those shown on this occasion. From Messrs. F. & A. Smith also came a handsome *Tropæolum*, named *Mrs. Treadwell*, with a dwarf climbing habit, the peculiar dark foliage of the King of Tom Thumbs, and rich-coloured crimson flowers; it promises to be a valuable acquisition, and was awarded a first-class certificate. A special certificate was awarded to a plant of the old *Gentiana Fortunei*, shown by Messrs. Osborn & Sons. As shown the plant had a somewhat spare habit, but it was covered with bright blue

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flowers, which were imperfectly expanded, owing to the absence of sunlight. A nicely bloomed plant of *Vanda cærulea*, from Mr. J. Burt, gardener to H. B. Mildmay, Esq., Sevenoaks, received the same distinction. It had a fine spike of large and well-coloured flowers. Mr. G. Curd, gardener to M. G. Thoyts, Esq., Reading, sent a variegated form of the common *Violet*, that looked very dull and insignificant, by the side of Messrs. Smith's bright-looking and even gaudy Variegated Zonal Pelargoniums. *Abutilon vexillarium*, from Mr. Macintosh, Hammersmith, is, no doubt, a very interesting plant to the botanist, but as a decorative plant it can claim to have but few attractions.

Some extraordinary specimens of double white and purple *Brompton Stocks* came from Mr. D. Thomson, of Archerfield. They were wondrously fine, and must look magnificent growing in the open ground. Very interesting, also, were a quantity of blooms of seedling *Primroses*, contributed by Major Trevor Clarke. It was singular what a progeny had sprung from the crossing of the common field Primrose with a like flower slightly coloured; and it was also noticeable that the higher order of cultivation to which they had been subjected had induced many of the plants to throw up a stalk surmounted with an umbel of flowers like the Polyanthus, instead of having but one flower only at the top; some of the blooms were also double, and many were furnished with stout and smooth petals.

R. D.

THE DWARF COCOA-NUT PALM AT SYON.

One of the most remarkable gardening incidents of the last few years has been the flowering and fruiting of the Cocoa-nut Palm in the ducal gardens at Syon House. The history of this achievement, which is due to the skill of Mr. Smith, and that of his successor, Mr. Fairbairn, is written in the volumes of the *Gardeners' Chronicle* for 1862, 1863, and 1864, and we are indebted to the editors of that periodical for the opportunity of introducing the accompanying representation of the plant as it appeared in 1862, shortly after the flowers were first produced.

The plant had been in an unhealthy state when, in May, 1860, Mr. Smith took in hand to recover it. It was disrooted, part of the old soil removed, and a new compost of "three-quarters old turfy loam from a pasture, and one-quarter rotted cowdung and leaf mould, with just sufficient river sand to keep the whole in an open" condition, was given to it. Water, containing a little salt was used, and when new leaves appeared copious weekly waterings were given as follows:—Two weeks pure rain water; the next liquid manure from a cowhouse tank, in the proportion of one gallon to four gallons of rain water; the following week a weak application of common salt and water, and so on successively." The plant grew fast, and in the spring of 1861 received a good top-dressing of the above compost. On the 26th of October in that year, the flower spathe appeared, and on the 23rd of January, 1862, the flowers opened. The temperature maintained was 70° in the morning, with a range of from 25° to 30° higher at noon during summer, and of 10° during winter; the bottom heat in summer, 85° to 95°, and in winter, from 95° to 105°. The plant was closely shaded in sunny weather, and a very moist atmosphere kept up.

These first flowers fell off without producing fruit, probably from their not being fertilised. The next year, however, the plant flowered again and

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set a fruit. This fruit, in a matured condition, though of small size, was exhibited on the 29th of June, 1864, at South Kensington, by the present gardener, Mr. Fairbairn.

The plant has since that time continued to thrive, and has now not only a crop of flowers, but also a couple of nuts, quite fully grown, and beginning to ripen off. These nuts are larger than the first, one of them measuring 18 inches in diameter and 12 inches in length from the base to the apex. The smaller of the two has been about sixteen months, and the larger fourteen months, in arriving at its present stage. The stem is now about 6 feet in height, supporting a noble head of its plumy fronds, which stretch quite up to the roof. M.

OUR MONTHLY CHRONICLE.

Testimonials.—The testimonial to Mr. Findlay, adverted to at p. 186, has been presented, and consists of a silver salver, and a purse of £210.——Mr. D. Mitchell has been presented with a parting gift on his leaving the gardens at Hamilton Palace, to commence business as a nursery and seedsman (in connection with M. Lamont), in Edinburgh. The testimonial consisted of a timepiece in marble, and a tea and coffee service with tray and salver, and a "beautifully embroidered cozie."

Aristolochia Goldieana.—This remarkable West African species flowered for the first time in this country last July in the Glasgow Botanic Garden; its flowers from the base of the tube to the apex, measuring along the curvature, are 26 inches in length, and across the mouth, 11 inches in breadth. It was managed thus:—Early in spring the tuber was repotted in a mixture of two parts turfy loam, one of leaf mould, and one being of sharp sand, being watered but sparingly at first. In autumn the stem died back to within 3 or 4 inches of the pot, from which water was entirely withheld, during winter. The temperature of the pit in which the plant was brought into bloom ranged from 65° to 70°, with a slight bottom heat.

Hardy High-flavoured Pears.—It has lately been remarked that if the fashionable test of tasting fruits when judging, were applied to Pears, the new and larger varieties would have to give way. The smaller Pears, moreover, if not the most showy, are the most convenient. Take for example the Hessel, a variety no one knows how old; if this were brought to market or to table when gathered, its place might as well be supplied by as many pieces of wood, but if kept till properly ripened, there is more real Pear-flavour in one of these fruits, small as it is, than in many of the large-sized new varieties, one half of which never ripen, and the other half frequently prove to be so gritty as not to be fit for table. The writer suggests that something would be gained by the raisers of new Pears keeping hardiness in view. Then, if such all-but-totally-neglected old varieties as Croft Castle, Knight's Monarch, Thompson's, Swan's Egg, Seckel, Suffolk Thorn, Winter Nelis, &c., were more encouraged for orchard planting, we might find the markets with a better supply of Pears, not indeed good-looking, but to the taste infinitely superior to most of the sorts now obtainable, as regards the property of a rich, melting, perfumed Pear-flavour.

Pinning Dahlia Blooms.—The existence of this practice, which does not seem to be generally known, has been lately brought to light, and whilst some persons maintain that it is legitimate, others hold that it is unfair: indeed it is certain, that pinned flowers are not in a natural-grown state. Mr. Keynes, a well-known authority on all matters relating to the exhibition of Dahlias, has lately observed:—Should I ever judge Dalihas again, I promise all "pinners" that their labour and ingenuity in that respect shall be lost. I will, however, tell them of a far more effective and legitimate way of keeping the petals firm. There are only a few sorts that in travelling are apt to shed their petals. Let all such flowers be placed in the box without water, and they will neither receive injury, nor shed their petals. Perhaps a knowledge of this may deter pinners from their clever contrivance, which I cannot consider fair. People talk about "dressing" Dahlias; but the form of the flower now-a-days completely obviates the necessity for doing this, for in nine cases out of ten you injure the flower by attempting to touch a petal.

Hooley's Conqueror Celery.—This is a very fine new Celery selected by Mr. S. Hooley, a mechanic of Nottingham, who has taken the first prize with it at each of five shows last year, against one hundred and twenty-nine competitors, and at four shows this year, against one hundred and twenty-six competitors. The largest pair exhibited weighed 11 lb. 2 oz. The variety has been

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obtained by careful selection for some years past. It has remarkably broad leaves, and is of vigorous growth, plants left for seed rising to the height of 6 feet, and stout in proportion, the base of some of the stems being as thick as a man's arm. Those who have seen it pronounce it to be the finest Celery ever raised.

Rusting of Grapes.—"J. S. E." thus writes in a recent number of the *Gardeners' Chronicle*:—I lately had an opportunity of inspecting a case of real rusting, in which the clear bloomy cuticle of the ripe Grapes was more or less changed into a brownish grey fibrous substance. This was clearly owing to excessive steaming. It had been the custom in the vinery in question to pour, twice a-day, a quantity of water on the heating pipes, so as to fill the house with dense white vapour of a high temperature. The rusting was worst immediately over the pipes, where the rising steam first impinged on the Vines, and it gradually decreased toward the top of the rafters. In the end of the house at which the heating pipe entered, and where of course the steam was hottest, the foliage as well as the fruit was much injured. The bunches near the upright glass in front were not rusted at all. I am aware that sulphur smeared on the pipes, to destroy red spider, sometimes produces rusting, but in this instance no sulphur had been employed, though a year ago a little had been dusted into the soil of the house. Viewing the circumstance on the spot, I could come to no other conclusion than that the rusting was due to the hot steam. Every one is aware that a moist atmosphere is beneficial to Grapes when the berries are swelling, but that is very different from immersing them twice a-day in vapour approaching the temperature of boiling water. Such an artificial climate does not resemble any on the face of the earth; and it is certainly very different from that in which Vines naturally grow.

Gooseberry Insects.—The managers of one of the Glasgow nurseries were formerly much chagrined that they could not send out decent Gooseberry bushes, for which there was a good demand. The want of success was referrible to the attack of an army of insects, that would fall upon the buds in the act of bursting, and almost denude the plants. Hence it was decided to modify the system of pruning, and accordingly the plants were left untouched until May, when full of leaf. Since this plan has been followed success has been realised, and better plants could not be desired.

Prize Celery.—The prize Celery shown about Nottingham is, we are informed, not earthed up, but is blanched by being tied up in brown paper, which is renewed every week, or as often as may be necessary. Though thus rendered better adapted for exhibition, it is not so delicate in flavour, as Celery which is properly earthed.

The Oakhill Vines.—Mr. Forsyth remarks on these Vines as follows:—"In the Florist and Pomologist at p. 257, Mr. W. Thomson's treatise on Vine Culture is quoted to this effect:—'At Oakhill, near London, Mr. Dowding planted a number of vineries forty years ago.' Mr. Thomson says he became acquainted with them in 1837. Now, one of these vineries was replanted in my time, about 1835, after the border had been entirely remade; and from an old Vine, replanted in this new border there was cut a bunch of Black Hamburgh Grapes, which was exhibited at Chiswick, and weighed 8¼ lb., the same Vine having borne a crop of Grapes the same year in the old border. This was considered at the time the finest bunch of that kind of Grape that had ever been exhibited in England, and therefore the extraordinary circumstance under which it was grown, is worthy of note."

Pyrethrum Golden Feather.—This pretty and distinct dwarf-growing yellow-leaved variety of the common Feverfew, has proved itself, during the past summer, to be a very useful and effective bedding plant, its dwarf feathery habit, and deep golden colour, forming an elegant contrast to the other coloured-leaved plants now so much employed. We have used it as an edging to a mass of Amaranthus ruber with excellent effect. The Floral Committee of the Royal Horticultural Society, too, has at last become satisfied of its merits, and given it a first-class certificate.

Large Pears.—Four remarkably fine Chaumontel Pears, grown in the grounds of Mr. G. H. Horman, H.M.'s Solicitor-General for the island, have lately been exhibited in Jersey. They weighed together 96¼ oz; the heaviest of the four weighed 30¼ oz., the lightest 19½ oz.

Garrya elliptica.—The female plant of Garrya is very rare in this country, but in the gardens of Mr. Finzell, of Clevedon, near Bristol, it has this season been covered with racemes of ripe fruit. The racemes are 2-3 inches long, bearing 30-40 capsules of the size of peas packed quite closely, and having the colour and downy surface of unripe Peaches. They contain a purple juice of insipid flavour, and a couple of large seeds.

OBITUARY.

Mr. James Cuthill, the well-known Strawberry, Cucumber, and Mushroom grower, died on the 5th of November, at Denmark Hill, Camberwell, in the 62nd year of his age. Mr. Cuthill has been a frequent contributor to the horticultural press, the most important of his contributions being, perhaps, those on "Market Gardening Round London," which were republished in a separate form. He was also the author of other pamphlets on different subjects belonging to practical horticulture, and a very successful cultivator.

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CALENDAR OF OPERATIONS.

STOVE AND ORCHID-HOUSE.

KEEP the air of the house moderately dry, and then the temperature may be maintained at about 60° by night, without danger of paralysing the constitution of the plants, or interfering with their vigorous action when subjected to the stimulus of more heat. Keeping this condition in view, growth is not necessary to be excited beyond merely a gentle movement of the sap. A display of flowers may be presented by *Gesneras*, *Euphorbia splendens*, *Justicias*, *Begonias*, and other winter-flowering stove plants. Some kinds now at rest and which it may be desirable to obtain early, may be started so as to be ready for potting next month. *Orchids.*—See that the plants do not suffer from dryness, but at the same time moisture should be cautiously and sparingly supplied. It should be in a great measure regulated by the greater or less disposition of the subjects to growth. Fire heat tends unduly to dry the air of hothouses; in order, therefore, that less of it may be required, and yet the necessary temperature kept up, some covering material may be used with advantage to prevent radiation by the glass.

GREENHOUSE.

Damp weather usually prevails at this season, the air being saturated with moisture; and at the same time very little fire heat will be required. Under these conditions little water will be necessary, and none should be given except the soil exhibit evident signs of dryness. The little that may be allowed should be given in the morning, so that all superfluous moisture may be dried up before the house is closed. Dead leaves should be carefully cleared away, and the foliage kept clean from dust. The temperature may fall at night as low as 40°; it may even be several degrees lower, rather than use much fire heat. Some of the plants will bear a temperature close upon the freezing point, but on account of many other kinds that are wintered in this structure, it will be advisable to maintain a temperature of 40°, which, while it will not unfavourably excite any plant, will yet keep all in a condition to start with more vigour when active growth is required. *Heaths and Epacrises* should be kept cool and dry, with plenty of air, avoiding fire heat unless the thermometer is likely to fall below 32°; water with caution, and apply sulphur if the least appearance of mildew can be detected. *Pelargoniums.*—Water sparingly, and do not wet the foliage, train out the shoots regularly according to some preconceived symmetrical form.

CONSERVATORY.

A moderately dry heat, just sufficient to keep out frost, is all that will be necessary. Water sparingly, and in the morning, so that all superfluous moisture may be evaporated early in the afternoon. *Chrysanthemums*, *Salvias*, *Linum trigynum*, *Narcissus*, *Hyacinths*, *Cyclamens*, *Tulipa suaveolens* (Duc Van Thol), and various *Lilacs* will ensure gaiety at this dull season.

PITS AND FRAMES.

If the interior of these and their inmates be allowed to get colder at any time than the air surrounding them, damping of the plants will be likely to ensue, as a consequence of a deposition of moisture from condensation, which will take place continuously till the plants acquire the same temperature as that of the medium in which they are placed, the more especially when the air is at the same time charged with moisture. Therefore, if the roots of a plant are colder than the air, they will become wet, and liable to damp off. A thorough circulation of air is hence beneficial, as it promotes a uniform temperature, and when that is the case, depositions of moisture, and damping-off, cannot take place. *Rhododendrons*, *Azaleas*, *Roses*, &c., may be introduced for being afterwards forced.

FORCING.

Pines.—However much it might be desirable to prevent the escape of heat by means of a warm covering, such cannot be employed during the day on account of light; but at night the Pine-apple is as independent of light in our climate as in Jamaica, and we may then adopt any kind of covering that is most convenient for the purpose of economising heat. Wooden shutters placed over hay or straw laid on the glass, answer well; their expense is saved in economy of fuel, with advantage to the health of the plants; for by using warm covering, uniformity of temperature, with less dryness of the air, may be attained. For starting early-fruiting plants, gradually increase the top and bottom heat, and in a fortnight's time give a little water, for by fully maintaining the temperature at the same time, plants that are swelling should have water in proportion to the dryness which a higher temperature occasions. *Vines.*—As the buds swell in the early vinery gradually increase the heat to 55° at night, and as they break to 60°. In the day the temperature may be allowed to rise 5° or 10° higher than at night. Fire heat will be necessary, and a moist atmosphere within the house should be formed by sprinkling the flues and paths. Moisture will encourage the swelling of the buds, and as the flow of sap tends most to the highest points, take advantage of this disposition by bending down the extremities of the shoots till the buds on the lower parts expand. Elevate and bring near the light such buds as it is most desirable to advance. *Peaches and Nectarines*—Natives of Persia and the East, and naturally flowering early, and at a cool period of the year, a high temperature is not natural for them, and if subjected to such,

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their blossoms are liable to drop, especially if it is a close heat: proceed, therefore, gradually at the rate of 45° to 50° at night, and 55° to 60° by day, or 65° by sun heat with plenty of air. *Strawberries.*—Introduce pots to the Peach-house or other convenient house, where they may enjoy moderate heat. Force slowly till the scapes have had time to push up, otherwise the flowers will go blind.

KITCHEN GARDEN.

Dry weather will be suitable for most winter operations, such as wheeling, digging, trenching, &c.; but, most generally wetness prevails at this season, therefore frosty weather should be taken advantage of for wheeling on soil and manure where wanted. Trenching may be proceeded with, provided the ground is not deeply frozen—for it is not well to trench down masses of frozen soil, as it remains for a long time colder than the surrounding portion, and so long as it is colder it is wetter than if it had been of medium temperature, for its coldness will produce a continuous deposition of moisture. Where lumps of frozen soil have been buried, they have been seen turned up wet and sour, even late in spring, to the disadvantage of the growing crops. Collect all decaying substances for the manure heaps, and these may be turned and mixed in wet weather. Forward all work that can be done in-doors. Cut and prepare *Pea sticks;* they are stronger and will last much longer than if the cutting were delayed till the sap is in active flow in the spring. *Willows* and *Osiers* for baskets, and for tying, should also be cut before the buds push to indicate motion in the sap. Protect *Endive* with flower pots. *Parsley*, at least a portion of the best, should have the protection of a frame. Draw some earth to *Peas;* trap mice, and it is recommended to give them to a cat on the spot. Sow *Radishes* on light soil on a sheltered border, and cover with straw or litter, turning it off in the day, and replacing it at night.

FRUIT GARDEN.

Trench and prepare ground for planting, and proceed with the operation whilst the weather continues favourable, not in frosty, nor in unseasonably wet weather. Dig the holes so as to be as wide at bottom as at top, and rather deeper at the outside than in the centre; in other words, the bottom of the hole should form a convexity over which the roots should be regularly disposed, and the soil broken rather finely should be spread over the roots by throwing it, not against the fibres, but in their direction away from the stem. Hold the spade near the stem, and throw the soil outwards; this will be right, but do the contrary, and be counted as an unskilful planter. If water stand in the holes dug for fruit trees, drain below the level of the stagnant water. Prune all kinds of *Fruit trees* unless the frost be very severe. Cut back those kinds intended to be regrafted in spring. Scrape, scrub, and wash clean the stems of standard trees, on account of insects which take refuge in the bark. Prune *Currants, Raspberries*, and *Gooseberries.* Hoe the soil away from the stems of the latter into the middle of the space, and there dig it in, for this has been proved, from long experience, the best plan for keeping clear of caterpillars. Prune and nail *Wall trees.* If the old shreds are fit to be used, they should be boiled; and the nails should be heated nearly red hot and plunged in linseed oil, and then for many years they will not rust. Nails should be driven no farther than to hold sufficiently, and never in the faces of the bricks, as it seriously injures the wall. Keep the fruit room as nearly as possible at an equable temperature.

FLOWER GARDEN.

All vacant ground should be rough-dug, and this can be done so as to expose much surface to the weather, and yet look by no means unsightly. In some cases, as in that of *Bedding Pelargoniums*, it is beneficial to give the soil a coat of manure before digging it over, *Deciduous shrubs* pruned now, make stronger shoots than if not shortened till a considerable portion of sap has mounted up in spring, and is then done away with, for in this case the plant is totally deprived of the vigour embodied in a considerable portion of elaborated sap, the result of the action of some weeks of summer's sun. Hardy *Roses* may be pruned now; but if any are desired to flower late they had better be allowed to push before pruning in spring. Deprived thus of their forward shoots, some time must elapse before fresh buds can push, and a later blossoming follows. Prune deciduous *Hedges*—thin at top to prevent them from becoming naked at bottom. Prepare composts by turning, and mixing, and exposing to frost to ameliorate the various soils.

FLORISTS' FLOWERS.

Auriculas.—Very little water, but plenty of air should be given; keep clean of decayed leaves and green fly. Loosen the surface soil, but not so deeply as to disturb the roots. If frosts are likely to be severe, a slight covering at night will be necessary. *Carnations and Picotees.*—Keep the pits or frames as open as possible, the plants will require water but very seldom; too much water without sufficient air is sure to prove injurious, as spotting will be the result. Cut away decayed foliage. *Dahlias.*—Cut off decaying parts, and dry the roots. They must be placed out of the reach of frost. *Pansies.*—Those in pots must have plenty of light and air; the lights should even be taken off when the weather will permit. Cuttings that are being struck should have water very sparingly, or they will be liable to damp off. *Tulips.*—These being now under ground, the beds may be exposed to all weather, with the exception of very heavy rains.

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